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CONTENTS

PAGE

I. AMERICAN CORPORATIONS AND THIER EXECUTIVES. *F. W. Taussig and W. S. Barker* 1

II. NON-COMPETING GROUPS - - - *H. J. Davenport* 52

III. GERMAN INDUSTRIAL ORGANIZATION SINCE THE WORLD WAR - - - - - - - - *Robert Liefmann* 82

IV. CHAPTERS ON MACHINERY AND LABOR. III. THE DISPLACEMENT OF SKILL - - - *George E. Barnett* 111

V. PROFESSOR KNIGHT ON PSYCHOLOGY *Maurice A. Copeland* 134

VI. RAILROADS: RECENT BOOKS AND NEGLECTED PROBLEMS - - - - - - - *William Z. Ripley* 152

REVIEW:

Edgeworth's Papers Relating to Political Economy *Irving Fisher* 167

NOTE:

"Superest Ager" - - - - - - - - - *A. B. Wolfe* 172

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CONTENTS FOR MAY, 1925

I. CHAPTERS ON MACHINERY AND LABOR I	George E. Barnett
II. A MOVING EQUILIBRIUM OF DEMAND AND SUPPLY.	Henry Ludwell Moore
III. ECONOMIC PSYCHOLOGY AND THE VALUE PROBLEM	Frank H. Knight
IV. THE TAXATION OF UNIMPROVED LAND IN AUSTRALIA	H. Heaton
V. THE EARLY DEVELOPMENT OF THE AMERICAN COTTON MANUFACTURE	Clive Day
REVIEW:	
Mills's Statistical Methods	W. L. Crum
NOTES AND DISCUSSIONS:	
The Meaning of Economic Equality.	T. N. Carver
The Progress of the Family Allowance Movement	Paul H. Douglas
"Superest Ager"	William C. MacLeod
A Proposal that the Coal Industry be let alone	H. L. Gandy
Soldier Land Settlement in Canada	E. J. Ashton
Consumers' Surplus in International Trade. A Supplementary Note	Allyn A. Young

CONTENTS FOR AUGUST, 1925

I. THE STATISTICAL DETERMINATION OF DEMAND CURVES	Holbrook Working
II. CHAPTERS ON MACHINERY AND LABOR. II. THE AUTOMATIC BOTTLE MACHINES	George E. Barnett
III. THE STATIC AND DYNAMIC VIEW OF ECONOMICS	N. D. Kondratieff
IV. CONSUMERS' DEMAND	James W. Angell
V. THE CHANGING STRUCTURE OF THE BARGAINING UNIT OF LABOR	Amy Hewes
REVIEW:	
Two Books on Agriculture: Warren and Pearson; Taylor	John Ise
NOTES AND DISCUSSIONS:	
The Coal Situation and the Coal Parliament. A Rejoinder	John E. Orchard
Recent Literature on British Unemployment Insurance	N. A. Tolles

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THE

QUARTERLY JOURNAL

OF

ECONOMICS

NOVEMBER, 1925

AMERICAN CORPORATIONS AND THEIR EXECUTIVES: A STATISTICAL INQUIRY[1]

SUMMARY

I. Subject and methods of the inquiry: Industries covered and questions asked, 1. — A pre-war period selected, 7. — Arrangement of the returns by classes and groups, 9. — II. Stock ownership by executives: Their salaries, 11. — Extent to which executives hold stock in large concerns, 12. — In moderate and small concerns, 14. — Stockholdings by relatives or friends of the executives, 18. — Executive salaries, by classes and groups, 19. — Fixity of salaries; only in the long run adjusted to corporate earnings, 20. — Proportion of management expense to capital, 23. — Proportion in close corporations and in those widely owned, 27. — Rarity of arrangements for bonus or profit-sharing, 28. — III. Earnings and surpluses, for all classes, 30. — For the first class, 33. — For the second class, 34. — Earnings in the first class more regular but less high, 35. — Dividends and surpluses, 37. — Significance of surplus, 39. — IV. The theory of profits: Contrast between American and European practice, 40. — Two views on theory: the one regarding business profits as a form of wages, the other as distinct from wages, 40. — American practice in accord with the second view, 42. — European practice, especially on the Continent, implies more nearly the first view: The tantième, 43. — The merits and demerits of the two practices, 48. — Conclusion, 59.

I

SUBJECT AND METHODS OF THE INQUIRY

THE subject of the present inquiry is business as conducted in the United States under corporate organiza-

1. In this investigation the collection and analysis of the data have been in Mr. Barker's charge. We have collaborated in planning the inquiry, in judging of the results, and in preparing the present paper.— F. W. T.

tion. Until the latter part of the last century the bulk of business was in the hands of individual proprietors or partnerships. At present, in the undertakings of importance, corporations have displaced almost completely the personally owned and personally conducted concerns. The central figure of the old days was the individual "undertaker"; today we have the incorporated employer, the impersonal enterprise, the corporate unit. This at all events is the situation in the United States. Business, grown larger and more complex, is no longer personal, it is institutional. Incorporated industry under salaried managers is the order of the day.[2]

Further, not only the initial investment of capital, but the accretions, take place largely under corporate organization and ownership. The growth of capital takes place not solely through individual earnings and savings, but through corporate measures for its increase as well as for its maintenance and salvage. A new situation has arisen with regard to the accumulation of capital.

This course of development has led to sundry questions not often considered, not easily answered. Is the change from the individual to the corporation one of form or of substance? So far as it is one of substance, are its consequences the same for large businesses as for small? Are the essential characteristics of corporate organization and management to be found in the corporations of small and moderate size as well as in the large ones? Are the executives themselves commonly large stockholders? Are the driving motives the same

2. From Mr. W. L. Thorp's excellent monograph on the Integration of Industrial Operation (Census Monograph No. III, 1924), it appears that in 1919 nearly nine tenths of the business of American industrial concerns was handled by corporations. They employed 86.6 per cent of the total number of wage-earners, and their product was in value 87.7 per cent of the total industrial product. As regards number of individual establishments, their predominance was of course much less; the larger concerns were mainly in corporate hands.

for the executives as for the individual proprietors of older days? Not least, is the analysis of business profits, as traditionally made in the books on economics, in need of revision or restatement?

As regards the growth of capital, other questions arise — somewhat different. Are corporate enterprises built up in the same way as the individual enterprises of former days? Are the returns to corporations stable or irregular — greater for large concerns than for those of small or moderate size; on the average, high or low? Are the wages of management stable or irregular? Do the expenditures for management salaries tend to become higher or lower per unit of product as the corporation becomes larger?

Most of these questions have been little considered in the literature of economics. Least of all has there been concrete and detailed examination of the new conditions. Some light might be thrown upon the situation if the corporations themselves were enlisted in a painstaking investigation of the actual experience of representative enterprises. With this in mind, we began some time ago a systematic canvas of incorporated manufacturing concerns. The inquiry was confined to manufacturing concerns, and among them to those producing staple goods under free competition. Cases of known or suspected monopoly were excluded. Except for these restrictions, there was no selection. Our questionnaire was sent to large numbers by mail. All returns which could be verified have been embodied in our data.

The inquiry thus was one by sample, not for designated or selected cases. Yet there was inevitably a certain unintentional and indirect kind of selection. Only those concerns sent answers which had accurate and intelligible accounts and records running back over many years. Those who were able to make returns on

this basis obviously followed systematic accounting; presumably they were more effective in management than the average. Hence our data were probably derived from able organizations, from a fairly prosperous set of businesses.

The industries from which returns came in were the following:

Clothing	Ink
Boots and shoes	Paints and oils
Leather	Glass
Cotton textiles	Lead
Woolen textiles	Iron and steel
Silks	Enamelled ware
Gloves	Machinery
Hosiery	Tools
Underwear	General hardware
Furniture	Steam and plumbing supplies
Foodstuffs	Agricultural implements
Paper	Chemicals

The list, it will be seen, shows no sign of selection, deliberate or accidental. The returns are representative of general manufacturing conditions.

The questionnaire we used is shown in facsimile.[3] The tabular form has columns for the statement of eight items from the book accounts, and a further column giving the number of executives. A period of ten years was to be covered. Thus there are in a full return ninety items. The items fall into two groups. Those relating to capital are in the first five columns, those relating to executives in the remaining four. The first two columns ask for the total invested capital — the stated or par capital, then the surplus or accrued capital; the sum of these being all the capital employed in the business. In the third column is the amount of fixed capital, being that portion of the whole, as stated

3. This facsimile is about one quarter the dimensions of the questionnaire. The figures and other answers are representative but are not those of any actual return.

HARVARD UNIVERSITY

Department of Economics

Capital Earnings Research

This form when sent to you bears no identifying number or other mark. After you have filled it in, sign the card; put the card in the small envelope and seal it. Both the return and the card may then be mailed in the large envelope at any postoffice you please. Thus the return will come to us without any means of identification except the card within the sealed envelope, addressed and assigned to Professor F. W. Taussig exclusively. Upon receipt we shall give the return and the sealed card a number in duplicate. Thereafter your report shall be known only by this number.

In scientific investigations there must be a means of certifying all data. This is our sole reason for requiring the signed cards. They will be held under seal by Professor Taussig; he will be personally responsible for them. Further, as to this return, though there will be no means of identification whatever upon it, no one outside this department shall see it. You can in no way be embarrassed through the disclosure of information.

We realize we have asked you to undertake a prolonged and somewhat intricate examination of your records, yet we believe the results will amply justify the work required of you and of us. You will join in a constructive way in the advancement of scientific business.

F. W. Taussig.
Walter S. Barker, *in Charge.*

Development and Distribution of Earnings

This table should be filled in either with book figures, or proportional (coefficient) amounts by means of the "key figure" method described below. *No one can get at your book figures without the key, which you will hold.*

YEAR	INVESTED CAPITAL*		Fixed Capital Plant, Equipment, Fixtures	Earnings Before Dividends Are Deducted	TOTAL DIVIDENDS	No. of Chief Executives †	Dividends Received by Chief Executives	WAGES OF CHIEF EXECUTIVES	
	Stated Capital Capital Stock	Accrued Capital Surplus						Salaries Fixed Compensation	Bonus Extra Compensation
1905	1.000.000	1.130.900	1.880.800	160.850	50.000	3	500	24000	None
1906	1.000	1.250.	2.010	170	50	3	600	24000	"
1907	1.000	1.390	2045	190	50	3	2400	24000	"
1908	1.000	1.730	1.920	410	70	3	3500	27000	"
1909	1.000	1.700	1.864	30	60	3	3000	28000	"
1910	1.200	1.790	2.455	150	60	3	4000	28000	"
1911	1.300	1.982	2.590	270	78	3	4800	28000	"
1912	1.300	2.218	2.605	340	104	3	7680	28500	"
1913	1.300	2.229	2.535	102	91	3	7280	30000	"
1914	1.300	2.495	2423	370	104	3	12040	30900	"

We should like your annual closing figures for the fiscal years from 1905 to 1914 or 1906 to 1915. This will not be feasible in all cases but even a few typical years will be useful whether within or subsequent to this period. If you can give recent years only, select those showing normal developments. It will be difficult in some cases to reach early figures, yet the abnormal conditions caused by the war should be avoided. Bear in mind the business cycle, including the bad with the good, in from five to ten years. We wish to secure the largest possible collection of data. We have no interest in your actual figures as such but we are interested only in the massed figures and their relation.

* Under this heading the total capital employed in the business should be shown. In the third column show that portion of the total capital, already stated in the first two columns, which is "fixed."
If key figure method be used (illustrated below) indicate by check mark's approximate total capital.

Less than 100,000	100,000 to 500,000	500,000 to 1,000,000	1,000,000 to 5,000,000	Over 5,000,000

† Key figure method be used (illustrated below) indicate by check mark's approximate number of executives.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	Over 50

"Key Figure" Method for maintaining the privacy of your figures.

Prepare your statement with book figures. Select any number you please (a figure unknown to everyone else), and divide all your figures by this constant divisor. Enter in proper spaces above the resulting quotients, or coefficients.

EXAMPLE: Your actual figures are

Capital Stock	Surplus	Fixed Cap	Earnings	Dividends	etc.
1,500,000	1,120,200	830,400	380,402	225,000	etc.

The divisor you have selected is 12. This is the secret key figure. The resulting quotients which should be entered in the appropriate spaces on the return would then be

Capital Stock	Surplus	Fixed Cap	Earnings	Dividends	etc.
125,000	93,341	44,717	27,533	18,750	etc.

These figures will give us the ratios—all we need. If you do not care to go to this additional work and are willing to give your actual figures, be assured they will remain unidentified, as your return will be known only by the number we shall give it upon receipt.

PLEASE CHECK ANSWERS:

1. It is assumed that "close" corporations present features differing from those corporations in which the stock is widely distributed.
   (a) Is this a "close" corporation? Yes ✓ No ____
   (b) State number of stockholders (approximately) 205

† 2. In giving the number of **chief executives** in sixth column, include only those who actually shape the policy of the concern and immediately direct the business. Only the men who stand in the same relation to the business as the old-time individual proprietors should be included, and all who are merely in supervisory work under direction of these chief executives should be excluded. In the succeeding columns seven, eight and nine, manager received only by the number of chief executives stated in column six should appear.
   Have any of the chief executives a further interest or incentive through
   (a) stock holdings of relatives or close friends? Yes ✓ No ____
   (b) extra payments by percentage or otherwise, conditioned on earnings? Yes ____ No ✓
   In Europe the payment of percentages of profit ("tantième") to the salaried managers is common.
   Were such payments made by you prior to 1914? Yes ____ No ✓

3. Has the corporate form brought about a change in the relations and interests of the managing heads affecting their efficiency and enterprise, leading to

   Increase ____ Decrease ____ No Change ✓

in the previous columns, standing in such instruments of production as real estate, buildings, machinery, equipment, and other fixtures. In the fourth column are the earnings each year resulting from operating the business. In the fifth are the cash dividends paid to stockholders. This first group thus deals with capital; the items show the earnings and the distribution of dividends, as well as the development of capital through accrued surplus earnings.

The second group, comprising the last four columns, gives figures of a different kind, designed to bring out the relation of the executives to the business. The sixth column gives the number of executives or administrative heads. In the seventh are stated the dividends paid to these executives as owners and holders of stock in the corporation. Obviously the figures in this column indicate the amount of capital stock held by them — the proportion of their own capital to that of other owners and to the total capital employed in the business. The eighth column gives the annual salaries paid to executives, while the ninth column shows any bonuses or payments over and above these stipulated salaries.

Bearing on the relations of the executives to the businesses, and the nature of their interest in success and profit, are some further questions asked at the bottom of the questionnaire, namely:

Is this a close corporation?

State number of stockholders.

Have the executives further interest or incentive through
(*a*) stockholdings of relatives or close friends?
(*b*) extra payments by percentage or otherwise conditioned on earnings?

Has the corporate form brought about a change in the relations and interests of the managing heads, affecting their efficiency and enterprise, leading to increase, decrease, or no change?

Certain of these questions are obviously of a somewhat general and perhaps vague character. It was hoped that they would nevertheless bring out some significant aspects of the situation, and, as will presently appear, they have done so.

On any problem of this kind the information is clearly of greatest permanent importance if it relates, not to a period of unusual or disturbed conditions, but to one that is normal and representative. Hence we had to disregard the period from the beginning of the war to the present time, because the war brought extraordinary disturbances, some effects of which still continue. Data typical of the normal course of business could be got only by turning back to the pre-war period. To add to this difficulty, we had to secure figures for a period of years long enough to include varying conditions and to enable cyclical and market fluctuations to offset each other. We were therefore compelled to turn back twenty years. We suggested in our questionnaire the ten years from 1904 to 1913, or from 1905 to 1914. This made the compilation difficult for any business office, while for many it was simply impossible, because figures referring to a period so far past could not be obtained.

An especial and serious difficulty in an inquiry of this kind is that it calls for information which many business men would consider quite their own affair. No economic data are so hard to procure as the jealously guarded figures of earnings, accruals, business profits, and salaries. Yet to secure these was of the essence of our inquiry. It was necessary to ascertain for a long period the earnings shown on closing the books each year, the dividends paid to stockholders, the amount of surplus or accrued capital, and, last but most private of all, the amount paid to the business heads in salaries. Further, we wished to know the ways in which the business

heads might be interested otherwise than through direct salaries. The first reaction to any questionnaire is a shrug of shoulders now bent under a burden of reports. Most difficult of all is it to get answers when confidential or semi-private matters are touched.

We met the objection of those who did not wish to give their actual book figures by devising a "key" method of statement. About one fifth of our returns were made by this key device. The method is shown in detail on our form; it rests on the use of a key number known only to the respondent. To illustrate: if a concern's actual capital is $1,800,000 and its actual earnings are $162,000 in a given year, and if both are divided by a key number selected by the respondent, — assume it to be 12, — then the key form of statement will on its face show capital to be $150,000 and earnings to be $13,500. The relation of earnings to capital in the key statement is the same as if the actual figures were given; the percentage of the earnings upon capital in this illustrative case is 9. But no actual figures are disclosed, and there is no possibility of identifying the concern. At the same time, an index on the questionnaire was checked by those making a key return, which served to indicate approximately what was the capital of the concern. This approximate indication of size sufficed to show in what class it stood — whether small, moderate, large, or very large; and thus the data could be properly classified and used for our general statements and inferences.

We think it significant that but a small number availed themselves of the key method. When convinced that we were concerned with nothing but the strictly economic problems involved, many who at first objected to disclosure did not adopt the method supplied for preserving privacy, but sent their actual figures. In an-

other way, however, individual privacy was completely assured. No name of any kind appears on the questionnaire. Those who made a return were asked to sign a card, which was then sealed in an envelope provided for the purpose. Both the return and the identification card were mailed in a special envelope provided by us. As these were received, the return and the envelope with its signed card were given a number in duplicate. The cards were then put in safe deposit. Thus the anonymity of every contributor to our data has been preserved, while at the same time we have the means of conducting correspondence if need be, as well as of authenticating the data.

In spite of all the difficulties, many of them apparently insuperable, approximately four hundred returns have come in at the time of writing the present provisional paper. Others are still in preparation. We believe that the data, gathered as they have been from many concerns in various industries all over the country, present facts of general significance. It is true that the results are derived from a number which is small as compared with the total number of enterprises in this class. Yet it is large enough to have some representative character and to justify an analysis of the results.

The returns were all examined for errors or omissions. A few were finally rejected because, in spite of suggestions made through correspondence, they gave unsatisfactory or insufficient statements. The returns were then classified in two ways. First, they were arranged according to size — capitalization being used as the index of size. Two classifications, in four groups, were made on this basis. In group A are the concerns of the first class, with capital of $1,500,000 or over. In this group are a number of very large concerns, some with capital of a hundred millions or more. The line of de-

marcation is similar to that of the mercantile agencies in rating business houses for credit: these list all concerns having a capital of over a million dollars at the highest rating. The concerns of the second class, of smaller capitalization, have been separated for purposes of analysis into three groups, B, C, and D. Thus we have:

First class:		
Group A	over	$1,500,000 capital
Second class:		
Group B	$750,000 to	1,500,000 capital
Group C	250,000 to	750,000 capital
Group D	250,000 or less	

As it happened, the reporting concerns were distributed almost equally between the four groups, there being approximately one hundred in each group.

Other classifications were made by groupings, such as:

The close corporations owned and controlled by a few stockholders.

The corporations widely owned by a large number of stockholders.

The labor of collating the mass of figures in the various combinations was great, as will be clear to anyone conversant with accounting or statistical methods. The calculation and careful checking of the percentages alone proved a heavy task for the certified accountants by whom this part of our work was done. The amount of work involved in the undertaking, however, was one of the least of the many difficulties encountered. The greatest of these was the fact that few concerns, especially the concerns of the second class, could give us data of the kind we required for the pre-war period. Those who failed to answer our questionnaire reported frequently sheer inability to supply the data because they had not kept their books, prior to the requirements of the income taxes, in a form suitable for analysis.

The recent growth of uniform accounting, subject to audit and adaptable to statistical statement, will make it possible greatly to widen the scope of such inquiries in the future. It is hoped that when conditions become settled again the present investigation may be extended through the collection of a greater volume of data from a larger number of concerns. But their collection, as well as collation and analysis, call for a large expenditure of time and money. The extension of the inquiry to its full possibilities is hardly within the scope of private support; but it may be accomplished in the future through the coöperation of business associations and, perhaps, of the government.

II

Stock Ownership by Executives. Their Salaries

We now proceed to the substantive questions, and, among these, first to the relations between executives and stockholders — between managers and owners. Under this head we shall consider (1) the extent to which executives are themselves stockholders; (2) the "close" or "family" corporations, in which the executives are identical with the stockholders or in intimate connection with them; (3) the cost of management relative to the size of the undertaking; (4) the prevalence of fixed salaries, and the almost entire absence of other forms of payment.

Tho the business managers work for and under the corporation and are paid salaries, they may also be stockholders, and participate as such in the dividends; or they may not own any stock at all. Our returns give examples running from extreme to extreme — from no stockholdings at all to full ownership of all the stock. The variety in this regard is surprising. Sometimes the

executives remain to the end simply salaried employees. As might be expected, they often own the larger part of the capital in the smaller concerns, especially the "close" corporations. In big concerns having huge plants and large stocks of goods at many distributing centers, the managers commonly handle investments so great that even in the course of years they could acquire but a small part of the capital involved.

The degree to which executives of the corporations participate as investors is shown in the fifth and seventh columns of the returns. These give the proportion of their dividends, as stated in the seventh column, to the total dividends as stated in the fifth column, and thus indicate the proportion of capital stock owned by the executives. Taking the mass results first, we find that about one quarter of the total capital stock reported by all the corporations was owned by the executives managing them; three quarters were owned by stockholders other than the executives. This general statement, however, does not indicate at all the diversity and complexity of the situation. An examination of stockholdings of executives in our several groups, A, B, C, and D, — ranging in size from large to small, — brings out details, of which some are in accord with what might on general grounds be expected, and some are not in accord with expectation.

Group A comprises the large corporations, some of them very large. Their capital, it will be remembered, ranges from a million and a half to over one hundred million dollars. In this group as a whole, the executives own less than one fifth of the total capital in the corporations; the proportion of the capital stock in the whole group held by them is 18 per cent.

A better understanding will be reached through an examination of details. First, taking these large corpo-

rations (Group A) by number, we arrange them by deciles. Executive ownership is shown as follows:

TABLE I

First	tenth,			.....	.000		
second	"	range	from	.....	.000	to	.014
third	"	"	"	.....	.017	"	.069
fourth	"	"	"	.....	.070	"	.108
fifth	"	"	"	.....	.113	"	.183
sixth	"	"	"	.....	.185	"	.280
seventh	"	"	"	.....	.281	"	.379
eighth	"	"	"	.....	.399	"	.500
ninth	"	"	"	.....	.502	"	.763
last	"	"	"	.....	.770	"	1.000

It will be seen that complete dominance through executive ownership of a majority of capital stock does not appear until the last two deciles are reached. That is, in one fifth only of the number making returns were the executives in a position of legal control. These were in the main the smaller concerns of the group; tho one fifth in number, their capital was less than one twentieth of the aggregate capital of the group. Half of the corporations reported executive ownership of less than a fifth of their capital stock, while more than one tenth reported no stock whatever owned by the managing heads of the corporations.

Turn now to an analysis of this group based, not on the number of concerns, but on the amount of capital employed. As just stated, the smaller organizations of the group, having less than one twentieth of the total capital in the group, show on the whole a large ownership of stock by the executives. In the organizations of heaviest capitalization the executives own a much smaller share of the capital stock. The first three deciles of our table comprise in the main the very large concerns; they have one half of the entire group sum of capital. In the first and second deciles we find concerns

which are under the guidance of executives who own no stock, or an insignificant amount, less than one and one half per cent; while the executives own less than 7 per cent of the capital stock of those in the third decile. In the largest corporations the executives frequently own nothing, or next to nothing. In individual cases, tho not often, they own a substantial amount of the capital stock of a large corporation. In general, the results are such as we should expect, even tho with striking individual departures from the ruling tendency.

Passing from group A to groups B, C, and D, — from the large to the small, — one might expect an increasing ownership of stock. On the whole this tendency does appear, but not with regular gradations, still less with any uniformity. The returns from groups B and C (capital from $250,000 to $1,500,000) show a marked increase in the proportion of executive holdings. In these two groups taken together, about half of all the capital in the businesses is owned by executives. We again found in both groups nearly the same proportion of concerns, about one tenth of the number, in which the executives own no capital stock at all. But within these groups there is a tendency to increased executive ownership as the concerns become smaller. The proportion that may be said to be wholly under the control of the executives, — their ownership of stock being as much as four fifths, — is for B 23 per cent and for C 30 per cent. Again, however, while a general tendency appears, there are striking individual irregularities in both groups, of the same kind noticed in our examination of group A.

If we now pass on to group D, the corporations with less than $250,000 capital, a situation appears which is not in accord with expectation. For the group as a whole, there is a reversal of the tendency found in

groups B and C. While the proportion of executive holdings is for group D greater than for group A, it is less than for groups B and C. The executives own no more than 45 per cent of the total capital stock reported in group D.

A detailed examination of the smallest concerns brings out some striking facts, especially when contrasted with the situation shown in group A, the largest concerns. Arranged by deciles, we find executive ownership in group D, as follows:

TABLE II

First	tenth,			.....	.000	
second	"	range	from	.....	.000	to .062
third	"	"	"	.....	.080	" .238
fourth	"	"	"	.....	.258	" .353
fifth	"	"	"	.....	.375	" .489
sixth	"	"	"	.....	.502	" .592
seventh	"	"	"	.....	.679	" .790
eighth	"	"	"	.....	.800	" .938
ninth	"	"	"	.....	.948	" .998
last	"			.....	1.000	(all)

In the lowest decile, management is in the hands of executives owning no stock at all; in the highest, every concern is owned completely by the executives. Again, in group A, it will be remembered, it was not until the last decile was reached, at the very top, that a few corporations were found in which the executives owned as much as 80 per cent (four fifths) of the capital stock, and these were the smaller concerns of the group. Here, in group D, we find three deciles with executive ownership of four fifths of the stock or more. Exactly this same proportion (30 per cent) owned as much (four fifths of the stock) in group C; but this is a greater proportion than for B (23 per cent), and five times as great as for A (6 per cent). Further, in the D corporations it appears that just one half the number, five tenths, are in legal control by the executives, they owning a majority

(more than half) of the capital stock. In group A, on the other hand, we found but one fifth, the last two deciles, in such control by the executives. As might be expected, there is a general tendency to increase in executive ownership as capitalizations decrease; yet not only with marked individual exceptions, but with the curious reversal in the general trend for group D as a whole.

The difference between the large and the small corporations is further brought out by a comparison on the basis, not of number, but of capital. It will be recalled that in group A less than 5 per cent of the total capital of the group was in the organizations in which executives own a majority of the capital stock. In group D, 50 per cent of the total capital is in corporations so controlled. As regards capital, we found in group A half the group sum of investment in the first three deciles, the executives in these owning either no stock or an insignificant amount. In group D the situation is different. Throughout the deciles of this group, capital is much more evenly distributed. The first two deciles contain corporations which are comparable, in the degree of executive ownership, to those in the first three deciles of group A. The managers own little or no stock. Yet, as regards capital, these D corporations have their quota of the capital of the group; they have an amount proportioned to their number — approximately one fifth. There is no marked falling off in the amount of capital in the successive deciles of group D, as executive ownership shows increase. In concerns of small investment the managers, even tho they may not start as owners, are able to acquire in the course of time a substantial portion of the capital stock. Many of the smaller enterprises are operated in a limited field with no need for outside capital or large investment. In the corporations involving larger capital the participation

of the managers in ownership usually decreases as size increases, but with no regularity. Finally, in a very large organization the managing heads may find it difficult, after years of service, to command more than a small portion of the capital stock; yet the amount of their holdings may be many times the entire capital of a corporation of the D class.

Most striking—to repeat—are the individual differences. There are great irregularities within each of the groups. In the small as well as in the large concerns we find cases in which no capital stock is owned by the executives. There are corporations capitalized for many millions, which are controlled through stock ownership by the executive heads.

Specific illustrations may be of interest. In one fifteen-million-dollar organization no capital stock at all is held by the executives; and in another of about the same size the executives own a majority of the capital stock. A three-million-dollar corporation is 90 per cent executive-owned, and there are several of about the same size with no stock whatever owned by the executives. There are the same irregularities in the smaller concerns; concerns of a few thousands or of several hundred thousands completely owned, with other like concerns in which the executives own nothing. Among the very smallest corporations we have a number with not a share of stock held by the executives, and also a considerable number wholly owned by the executives. Perhaps the most surprising single fact brought out in the course of the inquiry is the extent to which the smallest corporations are under "absentee ownership" — the owners of the stock being entirely a different body from the active managers. Side by side there will be found organizations with practically complete identity of ownership and management, and organizations

of similar size with no interlinking at all of ownership and management.

To sum up: the functions of ownership and management are combined in all sorts of ways, and may not be combined at all. We have among our returns some corporations of three stockholders and others of many thousands. The owners and managers may be completely identical, as in the case of many of the small close corporations; or they may be wholly separate, as of course is most strikingly the case in the very large widely owned corporations, but is the case also in many corporations of all sizes. In each and every class we find no combination at all and all gradations of combination — no executive ownership, small ownership, considerable ownership, controlling ownership.

One of the questions asked on our forms was designed to bring out whether there was some kind of effective connection between ownership and management other than that of direct ownership of stock by the managers themselves. We asked: "Have any of the executives a further interest or incentive through stockholdings of relatives or close friends?" For obvious reasons it was necessary to put this question in somewhat general terms, and an answer "yes" or "no" may not mean the same thing for all cases. None the less, the answers are instructive. Of 442 answers, 240 were "yes." That is, in more than half the corporations for which the question was answered, either the family or friends of the executive heads were stockholders; tho to what extent does not appear. The greater part of these, 127, were corporations of small or moderate size, with no more than fifteen stockholders—distinctly the "close" or family concerns. The remainder of the affirmative answers came generally from concerns also of the close

corporation type, tho of larger size. Yet here again there is no universal rule. In a number of instances among the larger corporations we find such stockholdings. It should be noted that this relation of control through friendly proprietorship seems to affect in no way the salary payments to the business managers under these corporations. As in other corporations, the managers are paid salaries fixed in amount; there appears in them as little tendency as in the others toward any modification through bonus payments or other profit-sharing arrangement.

We pass now to an examination of executive salaries — the wages of management in the stricter sense. First, as to the absolute salaries of the executives. Dividing the sum of all salaries stated in the eighth column of our questionnaire by the corresponding figure (the number of executives stated in the sixth column), we get the following average (arithmetic mean) of the yearly salary of the executives in the four groups, A, B, C, and D:

	Yearly salary per person
First class	
Group A, capital over $1,500,000	$9,958
Second class	
Group B, capital from $750,000 to $1,500,000	$6,897
" C, " " 250,000 " 750,000	5,195
" D, " " 250,000 or under	3,885

It should be borne in mind that these salaries are of the pre-war period, the years from 1904 to 1914. During the war, business salaries in common with other money earnings were greatly increased, and they remain at the present time at a much higher level than that of the pre-war period. Our figures are comparable with present salaries higher by 50 per cent and even more.

It should be borne in mind, too, that these are aver-

ages not only for each group as a whole, but for the several executives in each concern. The number of executives in some of the concerns was as many as fifteen, in others five or six, in still others less; not infrequently, in group D especially, there was a single manager only. Where there are several executives, the one at the head may receive a very large sum, the others much less. Our returns as a rule show only the total amounts paid out in salaries and the number of executives, not the salary of each one. The smallest single salary disclosed was $1,200, the largest $100,000. Absolute salaries, as would be expected, are higher in the larger organizations. But they are not larger in proportion to the size. The concerns of the first class, in group A, average in size ten times those of the second class, groups B, C, and D. Yet the businesses of the first class pay absolute salaries which average but twice as much as the salaries paid in the second class.

Executive salaries are subject to few and infrequent changes. What movement appears in the individual cases is almost entirely upward. In part this upward movement is accounted for by the circumstance that prices and money incomes in general advanced during the period in question. But no doubt it is chiefly accounted for by the fact that while salaries are raised in the course of time, even tho not promptly, for an efficient and money-making staff, in the reverse case they are not likely to be reduced. Poor management leads to a change in personnel, not a decrease in salary.

Some specific illustrations of the way in which salary payments run may be of interest. (In all of the cases to be mentioned, the number of executives remains unchanged throughout the period.) One concern of moderate size shows payments of exactly $10,000 for executive services for the whole period of ten years. During

this period earnings are fair, dividend record fair, and accrued capital (surplus) shows a small increase at the end of the period. A smaller concern reports payments of $5,000 for executive salaries throughout the period, while capital increases 40 per cent because of good tho variable earnings; dividend payments are maintained on a moderate but uniform basis. A large concern shows payments of $20,000 annually for the period; its earnings fluctuate but show a good average, the dividend record is fair tho not continuous, and capital increases 30 per cent. One corporation, larger than the last, shows a group of executives receiving $60,000 annually for the full period, while earnings show a moderate range and average well; dividends are good, and the capital increases 35 per cent in the term of ten years. These four are but a few among the examples of unchanging salary. Other cases may be cited showing the way advances are generally made. We have one concern of moderate size showing payments to executives amounting at first to $12,000 annually; then, after standing at this level several years, $14,000; then $15,000, where the figure again stands for a few years, and finally $16,000. In the meantime earnings, tho variable, average high; dividends are maintained upon a liberal basis and capital has increased 35 per cent at the end of the period. The larger part of the increase in capital was earned in the first five years, when salaries stood still. In another case — a somewhat larger concern — salaries remain at $15,000 for seven years, then are advanced, finally to $20,000. During this time, earnings are good, dividends are fair tho not continuous, but capital has increased 40 per cent, largely through the earnings of the first half of the period. It will be noted that salaries for executive services were advanced not at all during the period of good earnings; the advances began a year after the

close of the period of accruals and growth. One large concern raises its salary payments from $90,000 at the beginning of the period to $110,000 at the end, while there are poor years mixed with the good and the capital accrued during the period is less than 10 per cent. Another, of nearly the same size, pays $65,000 during the first few years and $100,000 in the last few years, while the gradual advances in between were made during lean years of poor earnings, when there was hardly any surplus over dividends paid. Yet for the whole period the growth in accrued capital is as much as 50 per cent. No bonus or extra payment appears in any of these cases. In every group there are instances of a flat figure throughout for the salaries of management; in every group there are also instances of substantial advances.

There is hardly a sign in any instance that salaries are adjusted upward year by year upon the basis of annual earnings, and none that they are adjusted downward. While earnings show the ebb and flow of changing business conditions, the salaries of the managers remain unchanged.

Over long periods, it is true, the case is different. There is clear evidence that in the long run executive salaries are thus adjusted to results. When a concern shows growth and prosperity extended over a number of years, there appears in the end an increase in the executive salaries. There are some rare cases in which an increase of earnings leads at once to a rise in salary. But usually we find an increase in the executive salary item only after the earnings over a considerable period have resulted in an increase of the capital and the productive capacity of the enterprise. And this long-run relation is natural. The results obtained by the executive may remain uncertain for a long time. Not all that

appears as earnings, not all accrued capital on the books, will prove in the end to be pure gain. The actual results from new policies and methods or new markets will not be known until the development has continued through several years. For the further reason that these fixed charges on the business must be met through good times and bad, the salaries of executives are usually held within an amount consonant with average results. In its relation to current conditions, this amount may seem low in a year when the concern is making surplus earnings and additions to capital; and it may seem high in the lean years or those of flat loss. The executive's greatest efforts are often put forth in the lean years and the hard times; his policies and decisions will come to fruition in the future. Meanwhile, his salary may remain for a long time at a standstill.

The question of the proportion of the expense for executives in the different classes may now be examined; that is, the ratio of the amounts paid for the services of the managers to the amounts of capital they handle. We shall make use again of the classification by size as indicated by the total investments. The following table shows what per cent upon the capital employed each year from 1904 to 1914 is paid for management. The figures, it should be noted, give the per cent of expense per unit of capital. No doubt it would have been better to ascertain the per cent per unit of product. But this our data did not enable us to do. The figures as we give them have virtually the same significance; there can be no marked difference between the results from these two ways of measuring the expense of management.

TABLE III

PROPORTION OF EXPENSES OF MANAGEMENT

Stated as proportion of invested capital

Year	First Class	Second Class	Second Class, subdivided		
	Capital $1,500,000 to $150,000,000	Capital less than $1,500,000	Group B Capital $750,000 to $1,500,000	Group C Capital $250,000 to $750,000	Group D Capital under $250,000
1904	.0050	.0288	.0264	.0332	.0654
1905	.0037	.0250	.0228	.0287	.0587
1906	.0042	.0257	.0227	.0286	.0658
1907	.0042	.0257	.0219	.0294	.0651
1908	.0040	.0261	.0217	.0305	.0612
1909	.0043	.0280	.0245	.0315	.0719
1910	.0042	.0275	.0226	.0324	.0643
1911	.0040	.0301	.0279	.0322	.0631
1912	.0041	.0278	.0243	.0312	.0610
1913	.0043	.0266	.0223	.0308	.0537
1914	.0040	.0273	.0216	.0332	.0507
Average for period	.0042	.0272	.0234	.0312	.0608

The striking smallness in the per cent of this expense for the first class (group A), as compared with the second class (groups B, C, and D), is explained by the relative size of the enterprises, and the fact that the capital invested in the corporations of the first class is very much greater. The A concerns have an average investment of nine million dollars. Those of the second class, in groups B, C, and D, average but a tenth of this investment. The great corporations are able to secure the services of management with less expense per unit of capital than the concerns operating on a smaller scale.

While the range, or dispersion, of investment is very great in the first class — capital running from a million and a half in some concerns to over a hundred million dollars in some others — the dispersion of the per cent of management expense is by no means correspondingly

great. It is true that some of the smaller corporations of this class show a ratio as high as .025 in certain years, and that one very large organization shows a ratio as low as .001. Most, however, cluster around the average shown in the table. In the smaller concerns of the second class (capital investment up to a million and a half) the range is much greater. The subdivision of this class into three groups B, C, and D, makes clear the difference in the rate of the expense of management as the scale of operation mounts from that of the smallest concerns (capital investment less than a quarter of a million) to the larger corporations. The proportionate expense of management is heavy in the early stages of development and diminishes with growth, larger capital and output. When a stage has been reached in organization where, under a chief executive, key executives are placed in charge of several divisions of the work of administration, further growth in size results in marked reduction in the unit expense of management. This stage, as a rule, is reached about the time a concern develops from the second into the first class. With large individual salaries, the cost of the service of management for large corporations is relatively much lower than for small corporations. High salaries paid for great administrative abilities bring not higher expense for management but lower.

Some qualifications of these general results must be noted. The small corporation does not necessarily require all the executive's time in pure management. In some cases, tho not often, he may devote a part of his time to another business or to something else "on the side." A more important fact is that the manager of a small business usually carries on a wider range of work than the executive of a great business. The segregation of specific executive service may not be carried

so far. In the small concern the manager may superintend the factory operations in detail, and he may also sell the product. Some features of this kind may appear throughout the second class of concerns. Even tho few marked extremes of this sort seem to be included in our list, it is probably true that in group D, and to a lesser degree in groups C and B, our figures are subject to some qualification from the inability to segregate the portion of salaries paid for management services pure and simple. In fact, all comparisons of this kind need to be made with caution. The individual differences of the various kinds of businesses are so great that there are marked variations in the nature of the management required, and the proportion of expense for executive salary to other items of expense will vary. Most of our data, however, are from concerns having the same general characteristics. When all is said, the outstanding conclusion remains: proportionate expense of management generally becomes less as the concern becomes larger.

Tho the percentages of the expense for management show marked increase from group A to group D, yet within each group they vary little from year to year. The rate for A concerns is nearly constant. The variations are most noticeable in D concerns. That management salaries do not move in correspondence with the irregular earnings is clear; note the rise in the ratio for group C in 1908, contrasting with a sharp fall in earnings in the depression following the crisis of 1907. But these variations signify little. The outstanding fact indicated by these percentages is the even course of the fixed expenses for management.

Another question bearing on the proportionate expense for management arises in connection with that of

stock ownership by executives, of which we have already spoken. In order to examine a possible consequence of dominant holdings by them, we have made another classification. In one group, F, we put the very close corporations, those in which the executives own practically all of the capital, 90 per cent or more. In another group, G, we put those at the other extreme, in which the executives own practically no stock at all. Group G, as might be expected, has a much larger representation of the great concerns, the capitalization in that group being on the average ten times as high as in group F.

TABLE IV

PROPORTION OF EXPENSES OF MANAGEMENT IN CLOSE AND WIDELY OWNED CORPORATIONS

Stated as proportion of invested capital

Year	Group F 90% executive ownership	Group G 10% executive ownership
1905	.0222	.0028
1906	.0195	.0035
1907	.0210	.0037
1908	.0271	.0033
1909	.0231	.0035
1910	.0283	.0038
1911	.0266	.0033
1912	.0305	.0035
1913	.0318	.0037
1914	.0278	.0032
Average for period	.0258	.0034

Obviously, in group F, where owners and managers are the same persons, the managers' salaries are but a portion of their receipts from the business. The total earnings are all theirs, whether they appear on the books as salaries, as dividends, or as accruals. The stated salary is virtually the same as a partner's "drawing account." The salaries of such manager-stockholders are hardly

more than bookkeeping entries. It would not be surprising if under these circumstances they were nominal, or at least irregular. It would seem they might bear a different relation to the corporate operations from that which appears when the managers own no stock and have no substantive interest in the concern except through their salaries. Yet no characteristic of this kind is shown by our figures. On the whole, these owner-managers allow themselves salaries in the same way as if they were quite distinct from the owners. These salaries, too, are firm year after year, and exhibit the same regularity, size for size, as under other conditions of ownership. Consciously or unconsciously the managers, even when they are owners, seem to recognize a distinction such as so many economists make between wages of management and "pure profits." To this general topic we shall return in another connection.

Still another phase of the constancy of the salaries of managers is to be considered. As will presently be explained fully, payments additional to the stated salary and based on the net earnings are universal in Continental Europe. They are frequent also in British manufacturing industries. It is familiar that in the United States no such system is in general use. We thought it desirable, however, to secure specific information on this phase of corporate organization and management. Accordingly, our questionnaire made inquiry in two ways. The ninth column of our tabular form asked for amounts paid as bonus or extra compensation. In addition, at the bottom of our return form this question was asked: "Have any of the chief executives a further interest or incentive through extra payments by percentage or otherwise conditioned on earnings?" Then followed a brief reference to the

European practice, and a second question: "Were such payments made by you prior to 1914?"

It appears that a very small number of our respondents made use of any such method even on special occasions, while a still smaller number had any systematic arrangement for extra compensation. A few of the large concerns had made, during the pre-war period covered, regular conditional payments. A few others showed special payments of the kind at the end of the period. Among the smaller concerns there was almost no payment of extra compensation upon any systematic basis. No more than 5 per cent of all appeared to have a regular method for extra compensation. These were almost wholly the larger corporations. Four per cent reported irregular payments, made apparently without system. Still another 4 per cent reported an occasional payment of a lump sum. Including all cases, the whole number reporting extra compensation for management was but 13 per cent.

We asked still another question bearing upon corporate management: "Has the corporate form brought about a change in the relations and interests of the managing heads affecting their efficiency and enterprise, leading to increase . . . decrease . . . no change . . . ?" The answers were almost entirely "no change." Not one marked "decrease," a very few marked "increase." These answers of course represent a certain bias. The persons who made them, executives themselves, were naturally disposed to think and say they were doing their utmost. Yet with every allowance for this bias it is striking that not a single answer suggested that a system of compensation based on a percentage of earnings might result in increased effort and enterprise. We shall return to this subject at a later stage. We note here that not only is a system like that

of the European *tantièmes* very rare, but that our business heads themselves believe the present corporate methods, including the payment of fixed salaries for management, to have changed in no way the managers' interest in the success of business.

III

Earnings and Surplus

The following table shows, for the whole list of reporting concerns, the average rate of earnings year by year. It shows also what was the rate of dividends, and what was the rate of accruals (surplus, or additions to capital); and finally, what was the proportion of the total earnings which was distributed in dividends.

Table V

Year	First Class Capital $1,500,000 to $150,000,000				Second Class Capital less than $1,500,000			
	Rate of earnings on total invested capital			Proportion of earnings divided	Rate of earnings on total invested capital			Proportion of earnings divided
	Earnings	Dividends	Accruals		Earnings	Dividends	Accruals	
1904	.091	.051	.040	.55	.134	.079	.055	.59
1905	.082	.048	.034	.59	.120	.070	.050	.58
1906	.093	.056	.037	.60	.145	.068	.077	.47
1907	.093	.051	.042	.55	.152	.073	.079	.48
1908	.077	.048	.029	.62	.094	.054	.040	.57
1909	.088	.051	.037	.58	.135	.067	.068	.49
1910	.082	.050	.032	.61	.116	.057	.059	.49
1911	.081	.052	.029	.63	.099	.062	.037	.62
1912	.085	.051	.034	.60	.118	.059	.059	.50
1913	.073	.054	.019	.74	.115	.057	.058	49
1914	.074	.054	.020	.73	.099	.061	.038	.61
Averages for period	.083	.052	.031	.62	.118	.062	.056	.52

1 The basis used in computing the rates of earnings, dividends, and accruals, is in all cases the total invested capital, including the surplus; not the nominal or par capital. Dividends being declared as a per cent upon the nominal capital, the rate of dividend as usually stated would be higher.

As has already been mentioned, the concerns from which our data were derived were probably more prosperous than the general run. The earnings seem to be indicative of what are secured by good organizations in manufacturing operations — higher than the average rather than lower. A more comprehensive survey might result in some changes in the general drift, but probably would find the essential situation the same. What is going on in the concerns that joined in this research is probably representative of what is going on in well-conducted manufacturing industry at large. The representative character of the data is strengthened, we believe, by the fact that among the reporting concerns few showed either continued extraordinary earnings or continued heavy losses. This may possibly be accounted for by the fact that concerns of either type might be reluctant to disclose their situation. At all events, neither extreme has appeared to such an extent as to affect the general results.

None the less, the range of variation in earnings — the dispersion — is still great. It is wide not only between different concerns in the same year, but for the same concern from year to year. The fluctuations are most striking in the small concerns. They are least in the very large concerns, those of our first class.

The differences in individual earnings can be illustrated by giving outlines of a few cases. One small concern ranges from no earnings in one year to 29 per cent in another, with ups and downs, no regular gradations, and an average for the period of 12 per cent. It is a fair example of the fortunes of the majority of small concerns. Sometimes the fluctuations will be greater, as in a case like this: the first year double interest is earned, next year a little less, then up to 40 per cent, down to half this amount, and the very next year a good stiff

loss; from that, up again to earning interest, then double interest, when again the earnings go off to practically nothing, then up to interest plus, and for the last year bare interest. Tho the breaks are worse than in the first case, the average is about the same. Another concern, of good size, tho not one of the largest, ranges from no earnings to 22 per cent, while still another ranges from a small loss to 23 per cent. Both show the same average — about 11 per cent. These fairly illustrate the concerns of medium size. A very large concern shows an average of 8½ per cent with a spread in earnings of twelve points; another, still larger, shows an average of 8¾ per cent with a spread of but six points. There are few cases showing as even a course as this last, and among the small concerns none at all of this kind is to be found. All these examples have been selected from those whose average earnings for the period are neither large nor small.

Among the few whose earnings were abnormal, — the occasional "money maker," with earnings averaging 30 per cent, even 40 per cent, — the range was often greater. The maker of "big money" under free competition is generally, tho not always, a concern of small or moderate size in the earlier stages of development. It may be a pioneer in its line, and may have a differential advantage through new methods or processes. In such a concern, even very high earnings are almost necessarily devoted to supplying the means for the heavy expenses of development. From year to year, nevertheless, there will be wide fluctuations. No enterprise, however successful in the end, can be established on a sure foundation in a short period. Of this our returns give clear evidence.

A more exact picture of the general situation is secured by arranging the concerns of our two classes by

deciles in the order of their average earnings for the period. We present first the figures for the concerns of the first class.

TABLE VI

First-class concerns,
Capital $1,500,000 to $150,000,000
Earnings on invested capital

	Range
1st tenth	.034 to .045
2d "	.046 " .054
3d "	.055 " .067
4th "	.068 " .079
5th "	.080 " .088
6th "	.089 " .096
7th "	.097 " .108
8th "	.109 " .116
9th "	.117 " .145
10th "	.146 " .350

In the last decile the range is carried up to 35 per cent by two "money makers" — one the smallest in the entire class, the other somewhat larger. These two have a combined capital of less than one half of one per cent of the total capital in the group. The next highest average earning is 20.1 per cent. For practically all in this group, 20 per cent is the upper limit of the earnings.

The concerns of the first eight deciles hold almost the entire capital of the class (93 per cent). Among these, note the very gradual rise in average earnings up to the limit of 11.6 per cent. The concerns in the two deciles of highest earnings have but a small portion (7 per cent) of the capital of the group. Those of the ninth decile hold only 5 per cent; those of the last decile only 2 per cent. In both of these, the range is great, and is especially so in the very last of all, which contains many of the smaller concerns of the class and but a very small fraction of the capital.

Similar figures follow for our second class.

TABLE VII

Second-class concerns,
Capital under $1,500,000
Earnings on invested capital

		Range		
1st	tenth	.01 (Loss)	to	.039
2d	"	.041	"	.058
3d	"	.058	"	.079
4th	"	.082	"	.091
5th	"	.092	"	.105
6th	"	.107	"	.121
7th	"	.122	"	.147
8th	"	.148	"	.173
9th	"	.174	"	.216
10th	"	.217	"	.416

It will be seen that the spread from the lowest to the highest is greater than in the concerns of the first class, and that there is also more spread within the deciles. Curiously enough, the highest "money maker" of all (41.6 per cent) is the very smallest concern in the class; just as was the case in the first class. This single case is followed by another small one averaging nearly as high (37.5 per cent), and by a few above 30 per cent. Then follow a number of concerns, completing this decile, with earnings grading down from 30 per cent. The total capital in the decile, however, is less than 2 per cent of the capital in the class. The upper limit of this class is virtually 30 per cent, which is to be compared with 20 per cent, the upper limit virtually of the first class.

Turning now to capital investment, we find that four fifths of the entire combined capital is in seven deciles, from the second to the eighth inclusive. Among these the capital is fairly distributed, tho the proportion is slightly greater in the second and third deciles. Of the remaining capital (one fifth), the two upper deciles — the "money makers" — have one fifteenth each. In the lowest decile of all, the losers are endeavoring to hold on to the remaining fractional fifteenth. The great uncer-

tainty and the irregularity in the earnings of small or partially developed concerns is clearly shown by the difference between the second class and the first. It is true that there are outstanding cases of small yet solid businesses under efficient management, whose earnings are comparatively stable. Yet the class shows as a whole much less even earnings.

Returning now to the earnings of each class as a whole, and examining the changes that take place from year to year, we find that the earnings in the first class are more regular than in the second, and also that they are lower. An inspection of the figures in Table V shows marked constancy from year to year in the first class, considerable irregularity in the second. As regards the rate of earnings, the average for the entire period shows 8.3 per cent on capital for the first class, 11.8 per cent for the second. The dividends are also less in the large concerns — 5.2 per cent against 6.2 per cent. Accruals, again, are less in the large concerns — 3.1 per cent against 5.6 per cent. With the smaller per cent of accruals for the first class, A, of course, goes a greater proportion of the earnings actually distributed in dividends. In that class, more than half the total net earnings (62 per cent) is distributed among the stockholders; in the second class, just about half (52 per cent).

The question may be asked whether the smaller rate of earnings and dividends for the great concerns is not to be explained in part by the fact that their stated capital includes more or less "watered" stock, whereas this is not so likely to be the case with the others. On this matter it is hard to make a precise statement. One cannot know whether there was or is water in the capitalization of a corporation unless one is fully and accurately informed about its past financial and industrial history over a long period. Our impression is that there are a

few of the very large concerns which were watered at least when they started. We feel reasonably confident, however, that the earnings of such concerns during the period covered by our returns would not affect the general results to any appreciable extent. Not only are the cases few, and their capital a moderate fraction of the total, but it frequently happens that in concerns with such a history, after a short period under able management, real assets are built up and the solidity of the capital stock is established. For the present purpose, the only pertinent fact is the amount of the actual investment; it is immaterial when and how it was made. It is to be noted also that, while there are no doubt some cases of continued over-capitalization among the very largest concerns, the first decile (of low earners) also probably contains some of them. The final quantitative result could be but little affected in any case by corrections on this score. If the capital of all the great concerns liable to suspicion were cut in half,—if their rate of earnings were thus doubled,—the general average would still be less than in the second class.

A better explanation, tho still a partial one, of the greater regularity in the earnings of the first class, and, to a lesser degree the lower rate, is found in another direction. There are differences in policy between the two classes in the matter of providing against losses, and especially in meeting the vicissitudes sure to be encountered in the business cycle. While certain risks are insurable (fire, liability for injuries to workmen, and the like) there are others which cannot be so met — depreciation and obsolescence of buildings, machinery, and equipment, shrinkage of inventory or credit values. In the large concerns reserves are maintained against contingent liabilities of this kind by setting aside each year a fraction of the current earnings. In the period cov-

ered by our returns, provision of this kind was unusual among the small concerns. While some set up reserves against depreciation of machinery, few followed any systematic plan, and fewer still made provision against the more remote possibilities of loss. The managers of large concerns, on the other hand, are likely to reduce the figures of earnings by an amount which will in their judgment guard the assets and provide against a reduction of future earnings. The losses or extraordinary expenses, when they come, are none the less real; but they are already taken care of. The policy of thus providing against all possible liability and loss makes book earnings and actual dividends more stable. The concerns of the first class thus have the appearance of earning with greater regularity because they have been more careful in what they count as current earnings.

The main explanation of the difference in earnings between the large concerns and the small is to be found in the stage reached by the businesses. Large concerns as a rule are large because in the past they *have been* prosperous. When they were small concerns, they earned more and accumulated more. Having built up a great capital, they reach the stage of steady but more moderate returns. They maintain their position, under competitive conditions, by conducting a large business on a small margin.

A significant difference between the two classes of concerns is shown by the way in which they apportion their earnings between dividend disbursements on the one hand and accruals to surplus on the other. The smaller concerns put more to surplus, pay out less in dividends. This appears in the figures already given for Class I and for Class II as a whole. In Class I, as has been shown in Table V, 62 per cent of the net earnings

were disbursed, in Class II only 52 per cent. The same tendency appears through the three groups of Class II. In these, as their size decreases, the percentage of dividends to earnings falls. It is 56 per cent for Group B, 48 for Group C, 46 for Group D. The range is thus from 63 per cent in the very large concerns to 46 per cent in the smallest. A corresponding trend appears, of course, in the rates of accrual—the per cents which are added annually to capital. The small concerns add more to surplus year by year, the large ones less. The figures are 3 per cent on capital per year for Class I, 5.6 per cent for Class II. Within Class II the same gradation appears. The figure is 5.5 per cent for Group B; 5.7 per cent for Group C; 6.2 per cent for Group D.

Looking at the dividend and surplus relations in another way, we find, not differences between the several groups, but uniformity. The dividend rate on total capital remains roughly uniform within each group and throughout the period. It must be remembered [4] that the dividend rate here discussed is not on capitalization, but on capital and surplus—on the stated original investment plus accruals. The accruals, it appears, get the same rate of return in dividends as the original capital, no more and no less. Hence the dividend rate on the whole capital remains constant. This is the case for each of the four groups. While there are, of course, great variations for the individual concerns in each group, there is none between the groups. In all there is a steady maintenance of disbursements; the dividend disbursements increase at the same pace as the total capital.

The "fixed" capital in the several groups — the land, buildings, machinery, fixtures — shows no significant variation between the groups as such. The proportion, heavy throughout, is somewhat smaller for the second

4. As stated above, footnote to Table V, p. 30

class, being 51 per cent for that class, against 55 per cent for the first class. But the several industries show much wider range in this regard. The proportion of fixed capital is high, for example, in the textile industries. From year to year, taking the returns as a whole, this proportion shows no tendency to change. During the decade covered in these returns, there is no apparent increase in the part which fixed capital plays.

Some general remarks are suggested by the drift of the figures regarding accruals. Accruals are a normal and almost necessary part of the continuance of a reasonably prosperous manufacturing business; and the returns on them, it appears, are reasonably good, but rarely rise to extraordinary heights.

As the figures indicate, growth by surplus takes place with regularity. The surplus must remain in the business. It goes usually into betterments, new plant, added facilities. It cannot be divided at once. In fact, in but rare cases does it give a chance for early disbursement at all. A return is expected to be earned on it, and is earned at the same rate as on the prior investment; but no more. This return from the irrevocable investment in surplus seems to be the concrete form of the "profits" of the manufacturing concerns — their "profits," that is, in the sense of earnings over and above interest on the initial investment. Profits of this kind do seem to be secured in representative concerns such as we are dealing with. But their substance remains imbedded in the business. Only in the few cases of exceptional money-makers was there any disbursement of a large sum, or any distribution of new stock representing assured great increase of net earnings. Ordinarily the accruals are merely a basis for future earnings, for a gradual flow of income which is dependent on the continued prosperity of the concern.

It follows that t. e solidity of the accruals depends on continued good management. They appear on the books as a lump sum. But their reality, so to speak, depends on the future. They are not distributable surplus. They must be kept in the business, and therefore must share the fate of the business. They are no more than a potential source of eventual income. If things go badly, they will melt away with the rest. If things go well, the net earnings are maintained or grow, and dividend checks can be sent out. But all depends on the management. As there is no automatic accrual of dividends, so there is no automatic accrual of surplus, and no assurance that an accumulated surplus will remain good.

IV

The Theory of Profits. European and American Practice

It remains to point out the relation between inquiries of this kind and the theoretical analysis of business profits, and to consider some problems of business practice.

On the theory of business profits there are two main trends of thought. One considers profits to be in essentials analogous to wages, and would reject any attempt at differentiation of busin ss profits from the earnings of farmers, lawyers, physicians. Business profits are but one of the many forms of the remuneration of independent workers. Profits are, indeed, a peculiar kind of wages, and some special things are to be said about them; but they are not *sui generis*. Therefore but three rubrics in distribution are to be set up — rent, interest, and wages. The other line of analysis separates profits from wages, and treats profits as a thing by itself; hence would consider distribution not under three

heads, but under four — rent, interest, wages, and profits. The first sort of treatment appears in Marshall, Sidgwick, Nicholson, Taussig; the other, on the whole the more widely held, is found in the writings of Walker, Ely (especially in the latest edition of Ely's *Principles* at the hands of A. A. Young), Seager. Continental writers commonly take the second view, that of the Americans just cited. The English more often take the first; Marshall is representative of a long line of predecessors and contemporaries. The differences between the two sets, no doubt, are largely in the way of emphasis and exposition; they are different modes of exposition rather than different explanations of the substance of things. But they are none the less marked.

As regards corporations, net earnings would be analyzed by the two schools in quite different ways. The item of interest, of course, would not give occasion for divergence of views. Part of the corporate earnings, under both, would be treated merely as interest on the capital invested; precisely as, in demarcating the business profits of an individual or partnership, interest on capital at the current or normal rate is to be deducted before one can make out what are the earnings of enterprise and management proper. But when it comes to stating precisely where to put one's finger on the disputable item — earnings of enterprise and management — the divergence in treatment becomes sharp.

The first school, while lumping all the net earnings together in case of the individual or partnership, would separate them — carve them up, so to speak — in case of a corporation. The "business profits" of a corporation are received partly by the stockholders, partly by the executives. What the stockholders get over and above interest (that is, dividends greater than what they could have got by merely lending their capital to others)

— this is in the nature of profits. But the salaries of the executive managers are also a part of the "profits" — that is, they are part of the earnings of enterprise as well as of management. The fact that owners and managers are different persons is but an incidental circumstance; the two combine in earning a joint return which, tho divided between them, is homogeneous in character.

The second school, on the other hand, would separate the total earnings in all cases, for individuals and firms as well as for corporations. Its adherents would distinguish throughout between earnings of management proper, which are simply wages, and the earnings or rewards of enterprise; the latter only are business profits. The salaries of corporate executives are wages, like any other wages. They are of the same nature and are determined by the same causes as the wages of superintendents, accountants, lawyers, engineers. The business profits of corporations are received by the stockholders and these only. Their dividends (so far as the rate is in excess of the interest rate) are alone the rewards of enterprise, risk, judgment. In the case of a firm, it happens, both wages of management and earnings of enterprise go to the same person, and the whole of the lump sum seems to be a homogeneous thing. But it is not so. The proper differentiation — that consonant with sound economic analysis — appears in the case of the corporation. There the essentially heterogeneous character of the earnings becomes plain. The executives receive wages; the business profits go to the stockholders.

The results of the present inquiry indicate that American corporations proceed on the basis of this second view, and tacitly confirm it. The managers receive stipulated wages; the "profits" go to the stockholders. That such is the general situation is a matter of common knowledge; it needed no elaborate inquiry to bring it

out. Yet, familiar tho the situation is, the confirmation from our returns has some striking features. Not only are the salaries of executives stable, — as much so, it would seem, as those of superintendents or engineers, — but they are treated as salaries even when the executives are themselves the owners. It will be remembered that, when examining the returns of those "close" corporations that reach the last degree of closeness, — those in which the executives own all the stock, — salaries none the less were found to be allotted by the owners to themselves in the same way as if ownership and management were separated. Even in this extreme case, salaries are treated as quite a different sort of thing from the "profits" of the corporation. To borrow the language of philosophy, American practice seems to support the dualistic view, not the monistic.

Not all practice, however, is the same as the American. It will be instructive to consider how these matters are handled in the corporate organizations of other countries, and what light is thrown on the subject by observing their peculiarities of practice.

Everywhere on the Continent the executives of corporations receive, not fixed salaries, but sums which vary with the earnings of the business which they manage. The "tantième" is universal. The Direktor (that is, the managing executive head) of a German stock company receives a fixed salary, and in addition a stated percentage (tantième) of the net earnings. The most common figure is 5 per cent, and the most common basis of computation is that of the net earnings after meeting all operating expenses (including interest on borrowed capital) and paying a fixed moderate dividend, equivalent to interest, on capital. If the concern is a very large one, not only the chief executives, but others having positions of high responsibility, have a

part of the tantième: that is, to compare with corresponding American positions, not the president only, but the vice-presidents also, share in the earnings. Among them these leading officials divide the tantième; which indeed might amount, for a great concern, to an inordinate sum if received by one only. In addition, it is common practice that the *Aufsichtsrat* (what we should call the Board of Directors) receives a tantième, often also 5 per cent, which is divided among its members.[5]

The fixed salary of the executive (or of the executives, if more than one) is always moderate. It is supposed to be such as to enable a man to live decently according to the standard of the social stratum to which he presumably belongs. Naturally, it is larger for a great concern than for a small one; larger, too, where special equipment or capacity is required. But it is deliberately kept at a modest figure. It is a sort of guaranteed minimum for the particular kind of work. Over and above comes the conditional tantième. This may amount to double the salary, even more. If the concern is highly profitable, the executive not merely earns a living, but "makes money."

All this is regulated by a written agreement for a term of years, usually five. The strictness of the contract is in striking contrast with the American corporation's arrangement with its executives. Tenure of the American executive is often loose and uncertain. In a rough way, it is "on good behavior"; the appointment is understood, whatever the exact legal relation, to last indefi-

5. A typical arrangement is the following: out of the net earnings of the concern there is allotted (1) something to reserve, until the reserve amounts to 10 per cent of capital; (2) a dividend of 4 per cent to stockholders; (3) 5 per cent of the remaining earnings, as tantième, to the executive or executives; (4) another 5 per cent to the Board of Directors (Aufsichtsrat), divided among these as they decide; (5) finally, a superdividend to the stockholders.

nitely. Yet it is subject to change at short notice if the stockholders (that is, the directors) become dissatisfied. The Continental contract, on the other hand, is elaborately and carefully drawn, and provides unequivocally, not only for the salary, but for the tantième.

There are variations of detail between different concerns and different kinds of concerns, and between different countries. In Germany the contract is nearly uniform in its character (not as to the figures, of course) for all corporations proper (*Aktiengesellschaften*). For the limited liability concerns, G. m. b. H., which are similar to our limited partnerships, there is more variety. These are usually more in the nature of firms, or, at least, of close corporations; their shares are usually not transferable by the holder at will, but only with the consent of the corporation, that is, of the majority of the stockholders. The executives of such concerns commonly receive a tantième, but not so universally as with the corporations proper. Sometimes they receive a fixed salary. Frequently, too, they are themselves holders of shares; which is in general not looked on with favor in the case of the executives of corporations proper. But these variations, interesting in many ways, are of no great moment for the present purpose.

In essentials the tantième system seems to be the same throughout the Continent. It is found not only in Germany, but in Austria, the Scandinavian countries, Holland. It is equally prevalent in France, Belguim, Italy. All over the Continent it is applied not only in manufacturing concerns of moderate size and simple character, but in the large industrial enterprises and combinations, in the great banks, in insurance companies — throughout the range of business.

Something of the kind is frequent in Great Britain also. It is true that in the case of "public companies"

in Great Britain — what Americans call public utilities — the plan of fixed salary is universal; and, so far as we can learn, the same is the case with banks, insurance companies, and the like. But among manufacturing industries there is considerable resort to a profit-sharing arrangement analogous to the tantième. So far as we can learn, this is as common as that of a fixed salary. Corporate organization, it must be remembered, has not ramified as far in Great Britain as in the United States or Germany. A very large proportion of the manufacturing concerns of moderate size are still in the hands of firms and individuals. British industry, in this respect as in others, shows more variety and flexibility than that of the Continent, and lends itself less readily to description in general terms. The contrast is most striking between American practice and that of the Continent.[6]

The tantième system, it is evident, implies an attitude toward the "profits" of a corporation different from the American. It is hardly in accord with the conception that the earnings of enterprise go solely to the stockholders of a corporation. The executives also share in the "profits." Their fixed salary is deliberately made moderate; it is less than the man may fairly be expected to earn, year in and year out. Like the member of an American firm or partnership who has his "drawing account," the Continental manager gets enough from month to month to pay his ordinary living expenses. But at the end of the year he may prove to have earned much more. His tantièmes may serve to build up a property, even a fortune. Part of the rewards of enter-

6. Information concerning British methods is difficult to get. What is stated in the text is the result of private inquiry. We are particularly indebted for valuable notes to Professor McGregor of Oxford and Mr. D. L. Walker, Secretary of the British Affiliated Industries. The matter has received as little attention in England as in the United States, and seems to us well deserving of further investigation.

prise, of risk-taking, of the exercise of judgment, go directly to him. And how much of his total earnings is to be regarded as "wages" for labor, and how much is something different and in the nature of "profits," it would be hard to say. He takes risks, as do the stockholders. He ventures his whole energy, taking as guaranteed pay a sum less than he expects to get and is expected by the stockholders to get. He exercises judgment, he must show enterprise. The line between his salary and his tantième is sharply drawn in his contract. But his tantième is just as much reward for his work as is his guaranteed minimum. We may indeed say that the fixed sum is wages, the tantième is "profits"; but is not this an artificial distinction?

It is to be observed that the Continental practice makes an overt distinction as regards the receipts of the stockholders. Their "ordinary" dividend — that which they get before the tantième is reckoned — is at the interest rate, and is the minimum return on investment. The super-dividend which may finally come to them is obviously in the nature of business profits. It is the reward — if there proves to be any — for enterprise and judgment. *If* business profits are to be sharply separated from wages, — as the second theoretic view contemplates, — the profits are to be found, in case of the Continental corporation, in the tantième and the super-dividend combined.

The contrast between the American and the Continental attitudes must not be overstated. As we have seen, the executive of the American corporation of moderate size is often himself a considerable shareholder; and quite as often he is vicariously in that situation, being a representative of relatives and friends who are shareholders. In so far, he has taken a hand in the initiation of the enterprise; or at least, if he be a sub-

sequent purchaser, in its selection. In any case, as shareholder he takes his part in the current risks and uncertainties. And even if he be no shareholder, or a very small one, his economic position does not remain quite independent of the net earnings of the concern. It is not independent in the same sense as is the position of the superintendent or technician. Neither tenure nor salary of the managing executive is absolute and unqualified. After all, he is on good behavior. Tho he is given time to show what he can do, there is a limit. He must make money for the corporation, and must make it on a scale corresponding to his salary; otherwise, sooner or later, he must go. In the long run, and in the last analysis, he is in a *de facto* profit-sharing position. At bottom his case is not entirely unlike that of the Continental executive with his tantième.

When all is said, however, the position of the American executive remains very different from that of the Continental Direktor. And the practical significance and consequences of the differences are more important than the theoretical classifications and refinements. The question of substantive moment is, which method is in practice the better — that of the fixed salary and uncertain tenure, or that of fixed tenure and uncertain pay? The question goes far into the problems both of economic organization and of economic motivation. We can do no more, in connection with an inquiry like the present, than indicate some of its bearings.

The tantième plan would seem to be in accord with the general principles of individualism and of private property. In general, the world now pays people according to their efficiency — their contribution to production, their ability. The individual or firm that manages a business for itself, so it has been commonly said,

is likely to be more efficient than the corporation, for the very reason that hired managers are less keen, less efficient. If the corporation none the less has displaced the firm, it must be because it has some offsetting advantages: not only those of limited liability and legal simplicity, but of permanence and continuity, and the potentiality of vast capital and indefinite expansion. The lack of direct personal interest on the manager's part none the less remains a drawback. In discussions of the *pros* and *cons* of public ownership, for example, it has been pointed out that both alike are at a disadvantage compared to individual ownership, because both rely exclusively on hired labor. Does not the tantième system offer a middle course, combining the advantages of corporate organization with the stimulus of individual interest? The drift of the present industrial system — to repeat — is to pay workers in general as far as possible on the basis of what they perform or contribute. Manual laborers are paid by the piece. If an occupation is such that payment cannot be made directly on a basis of this kind; if it is difficult to measure from day to day what the man does, as is the case with clerks, foremen, superintendents — there is none the less a constant watch on their performance, promotion of the industrious and capable, as quick and close a correspondence as possible between earnings and efficiency. Why not do the same with the managers themselves?

To ask this question is not to imply that American industry is inefficient. That it is not so seems to be indicated by the familiar fact that the returns to labor and capital are higher than elsewhere. Better leadership by the business managers is among the causes of this general superiority, the abundant and varied natural resources being only in part responsible. Nor is it difficult

to perceive the nature of the factors in American society which conduce to vigorous and successful management. The pervading spirit is alert and eager, one of perpetual competition and unceasing technical and business progress. No doubt the money-making spirit is carried to the extreme, and is not altogether amiable or admirable; but it is there. All the emulation of the business class, its standards of success and achievement, cause the corporate manager, no less than the independent business man, to run his concern at his best pace.

And there is something more. The traditions of corporate management are good among the manufacturing enterprises with which this inquiry deals. Whatever be the sins of corporate mismanagement and manipulation among the great public utilities and the giant trusts, the incorporated manufactures, of small and large size, show in the main a single-minded devotion by the managers and directors to the interests of their stockholders. There is commonly pride in the success of the concerns as such, a spirit not entirely selfish. The managing head does not need to be regularly bribed in order to make things go well, or regularly docked to prevent them from going ill. On the whole and in the end, he may rely on being paid in proportion to his services. It is part of the American tradition to pay very high salaries — much larger than are known in Europe — to men of very high ability. The executive may be content to bide his time, assured that sooner or later he will receive remuneration, in his present position or in some other, on the basis of his achievement. And he is relieved of a certain uneasiness, and of any temptation to follow a cheeseparing policy. He is free to develop large plans and to wait for ultimate results.

And yet, when all is said of the good sides of this "American plan," is it not worth while to consider

whether even better results might not be attained if there were more direct connection between executive earnings and executive success? Is it not possible that the fixed salary is merely a tradition and a habit? Is its universality the result of deliberate weighing of the alternatives, or is it simply an unreflecting maintenance of the good old way? This seems to us especially deserving of consideration in connection with the manufacturing industries which chiefly have been described in these pages. Most of all may the question be raised concerning the corporations of our B and C groups — those not very large and not very small. They are often not at all close corporations. Often they do not show that community of interest between executives and owners which comes when the executives are themselves large holders of stock. They cannot command the services of the outstanding business leaders, the rare few who have an unquestionable genius for organization and management. They must be content with intelligent, solid, prudent executives, who in the main follow those in the foremost rank. Might they not follow faster, be more on their toes, if there were a clear, immediate relation between their earnings and the net earnings of their concerns? A strong sense of duty and a pride in performance are not inconsistent with a lively interest in one's own advancement. Is it clear that our practice of a long-postponed and uncertain adjustment of salaries to results is better than the more direct relation that prevails on the Continent? We ask the question, but do not pretend to answer it. It seems to us to deserve the attentive consideration of the business community.

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NON-COMPETING GROUPS

SUMMARY

Values reporting themselves as relative prices, costs, to bear on values, must be relative costs, and must be reduced to money terms, 52. — Efforts and waitings, therefore, articulate with prices only when translated into money costs, 54. — The employer *vs.* employee point of view, 55. — The assumption that, in general, wages and interest are proportional with effort and waiting sacrifices, 55. — Cairnes's interpretation, with wages and interest conceived as derivative from product prices, and with labor as the antithesis of the remuneration of it, 55. — Employer *vs.* employee cost, 56. — Relation of effort and waitings costs to employer money costs, 56. — Mill, 56. — Taussig and Marshall, 57. — Ricardo, 59. — Ricardo and Cairnes, 59. — The constitution of the groups — by definition, 63. — The groupings not by vocations but by remunerations, 65. — In what sense can the intra-group relationships be competitive? 66. — Cairnes's and Taussig's reports of the groupings, 67. — Dates of group fixation *vs.* dates of group competition, 70. — The groupings further examined, 71. — Social stratification the point of emphasis, not competition or the lack of it, 73. — Inherited opportunity never more than part explanation of income groupings, or of ratios of income to sacrifice, 74. — Complete fluidity of labor also would leave the groupings no less inadequate, 76. — The three requisites for a tenable labor theory of values still unmet, 80.

PRICE is the only one among the many exchange ratios of any particular commodity to other commodities that the actual market process reports. The other exchange ratios find expression only under the guise of relative prices. These potential exchanges are readily worked out through operations involving the monetary mechanism. These are, then, market values that are distinguished from market prices only in the sense of those value relations that the price situation would realize were the non-intermediated exchanges to become actual. Not that thereby these values become hypothetical; rather, they are inferential, but not thereby

unreal. It belongs, indeed, to the very notion of a medium of exchange — the standard thing — that commodities achieve ultimate exchange relations only by virtue of these relative prices.

It is further clear that, since values are relative, costs of production, as bearing on values, must also be relative. And precisely because the sole market value is price-value, it must follow that all costs of production directly articulating with the prices of products — costs in the employer's sense — must be costs reduced to money terms. Appeal may no doubt be made to the influences back, say, of the wage costs — the labor-price costs — to explain these labor prices, these money wages; but these influences have for employer purposes to get themselves reported in price terms, precisely because it is only through their influence on wages in money terms that they can come, through the mechanism of business costs of production, to bear upon the market prices of the derivative products. However unsatisfactory, therefore, from the point of view of logic, it may be to explain the price of any product by the prices that go to make up its aggregate of production costs, and no matter how urgently something further may be required as explanation, all employer costs of production have to be money costs, so far as they are adapted to bear on prices; and costs of production must be relative costs of production if they are to bear on relative prices.

Nor is the case either better or worse with explaining product prices by cost prices than with explaining cost prices by product prices. Each method of approach involves the awkwardness of accounting for exchange relations by assuming certain of them to start with. To explain labor prices, wage costs, as being reflected back from the prices of the products leaves these product

prices waiting to be explained. And to regard the price costs as passed along to fix the product prices is to leave the prices of the costs still to be explained. Either of the two values would do to start with, if only, in accounting for market values, any value could be taken as already given as a starting-point.

Two methods of solving the difficulty have been attempted: (1) the relative hindrances attending the efforts and waitings in production are appealed to as accounting for the relative price outlays attaching to these efforts and waitings as items of employer cost; or (2) relative utilities in consumption are offered as accounting for the relative prices of the ultimate products. Once the products have somehow arrived at their prices, it is not at all an impossible task to deduce therefrom in some fashion the prices of the factors affording these products. Once the costs have been arrived at without appeal to the products as causes, it is easy enough to arrive at the prices of the derivative products. The difficulty is solely in getting the start. It is no part of the present purpose to discuss whether either the utility or the pain method of getting it has been successful.

Cairnes's attempt to escape from this circuity chose, however, an intermediate method. From relative sacrifices in the industrial processes of production he derived the relative prices for products; as reflected back from the prices of these products, he derived the remunerations for the agents and instruments of production. For him the wages of the labor, the machine hires, and even the incomes on invested funds held the rank of mere distributive shares. Costs of production in the sense of the superficial or question-begging entrepreneur computation — the wages and the other hires — were doubtless actual, but were not in his view costs in any fundamental value-determining sense. *No price fact*

was by Cairnes admitted as a cost item *in this ultimate sense*. Only the efforts and waitings devoted to obtaining products could in his view rank as the costs of those products — not wages, but labor; not interest, but waiting. The wages were the reward of labor, not the burden of it — interest the remuneration for waiting, not the cost of the waiting. In this emphasis Cairnes says:

> Of all ideas within the range of economic speculation, the two most profoundly opposed to each other are cost and the reward of cost — the sacrifice incurred by man in productive industry and the return made by nature upon that sacrifice. . . . Cost and remuneration are thus economic antitheses of each other. . . . Cost means sacrifice, and cannot, without risk of hopelessly confusing ideas, be identified with anything that is not sacrifice. It reports what man parts with in the barter between him and nature, which must be kept eternally distinct from the return made by nature on that payment.[1]

Cairnes's purpose was not merely to clear up the endless confusion between labor-pain and labor-wage theories of value, but therewith also to force value doctrine definitely back upon the labor-pain track from which Senior in some part, and John Stuart Mill systematically, had diverted it. The entire attempt to state the cost-of-production problem from the employer point of view, with its wage and interest outlays conceived as costs and as ultimate explanatory causes, — instead of from the point of view of the burdens of labor, for which wages are the remuneration, and of the abstinences of the capitalists, for which interest is the remuneration, — Cairnes denounces as both superficial and circuitous; as leading inevitably into a chronic confusion of wages for effort and of interest for waiting with the effort-costs and the waiting-costs themselves — an assertion of identity or interchangeability where manifestly there

1. Cairnes, Political Economy, chap. iii, sect. 4.

can be only sharp antithesis. Wages and interest equally with rents Cairnes held to be end items in the causal sequence — distributive shares in such sense as to deny to these shares any, even intermediate, causal bearing on prices. For it has later become fairly obvious that, if wages and interest are causal in their relation to prices, so also are rents. And if rent is a result, so equally are wages and interest. Cairnes declared all to be results. Cairnes, that is to say, sought the enduring outlawry of the entrepreneur-cost method of approach, instead of the acceptance of it as a current business fact for whatever of service it might rightly offer:

> In the analysis of cost production which I have quoted [John Stuart Mill's analysis] these two opposites are identified; and cost, which is sacrifice, cost, which is what man pays to nature for his industrial rewards, is said to consist of wages and profits [interest], that is to say, of what nature yields to man in return for his industrial sacrifices.[2]

In fine, then, not cost from the point of view of the man who employs the laborer and pays wages for the work, but cost from the point of view of the man who does the work, is the significant and ultimate cost as Cairnes conceived it. And from the point of view of the laborer, not the reward for his work but, obviously, the doing of the work must be the cost.

> Mill [Cairnes declares] discloses with perfect clearness the line of thought by which the view in question has been reached: What the production of the thing costs to the producer, or its series of producers, is the labor expended in producing it. If we consider the producer the capitalist who makes the advances, the word labor may be replaced by wages; what the product costs to him is the wages which he has had to pay. In other words, the point of view is shifted from the ground of human interests to the partial and limited standpoint of the capitalist employer; and the cost of producing an article, which really consists of the sacrifice required of human beings for its production, is only considered so far forth as it is "cost to him," that much more important view of the cost which is

2. Cairnes, op. cit., chap. iii, sect. 3.

cost to the laborer [the burdensomeness of the labor] being put altogether out of view. . . . But to the laborer wages are reward not cost; nor can it be said that they stand in any constant relationship to that which really constitutes cost to him. If they did, wages in all occupations, in all countries, and in all times would be in proportion to the severity of the toil that they recompense. Whereas the proposition fails, etc. . . . That it fails in different occupations in the same country Mr. Mills himself allows. . . . He has been the first economist strongly to insist on the importance of this fact.

The treatment of this topic at the hands of later writers may be assumed to be familiar to the readers of a paper like the present; and I leave it to readers to judge how far they have succeeded in keeping clear the distinctions to which I call attention.[3] But in the interests both of clarity and of justice, the precise issue here may need to be made more specific. I do not imply that any leading economist of the classical tradition since Cairnes is to be charged with confusing these antithetical points of view but only with assuming that relative pain costs are practically, and for most purposes, interchangeable with relative wage and capital costs. My point of attack is solely this assumption, — which seems to me to be both explicit and implicit with Marshall and Taussig, and to be typical of classical doctrine, — that in some large and general way the wage and interest outlays of the entrepreneur find their determination and their adequate explanation in the efforts of the wage receivers and the waitings of the interest collectors — the payments so far proportional with the sacrifices as to be quantitatively accounted for by them. Were this position tenable, no objection could rightly be urged against the constant shift between the two points of view. So far as I know, this proportionality faith awaits even an attempt at serious argumen-

3. Representative pertinent passages as in Marshall's Principles, vol. i, pp. 430, 476, 477 (4th edition), and in Taussig's Principles, vol. i, pp. 171, 172, 186, vol. ii, p. 147, and chap. 48, *passim*.

tative justification. Unless the correspondence of wages with laborers' sacrifices is obvious, I ask solely that such connections as are relied upon be definitely indicated and established. I take it not merely that, for the classical position, something is needing to be done at this point, but that it cannot be done — the doctrine of non-competing groups amounting in itself to the frank admission that it cannot, excepting within certain very limited fields. And thus the particular purpose of the present writing is to show that, even in the particular fields reserved, the attempt has ended in failure.

That is to say, I deny — with Cairnes — any general, significant, and workable correspondence between the pains or sacrifices lying back of production and the remunerations awarded. And I hold also that even did "these payments more or less closely correspond," the very more-or-lessness of the correspondence must disqualify it for the purposes for which it is offered — the proportionality of the expenses of production with the ultimate sacrifices and pains in the productive process.

But whatever may be the merits of the argument under this head, the immediate purpose is to get the precise issue clear, to the end that Cairnes's position with regard to it may become also clear. Cairnes both admits and asserts the general lack of even any more-or-lessness of the sort in question; but finds, as he believes, a significant residuum of it inside the limits of the respective non-competing groups which he sets up. For present purposes, therefore, the problem becomes twofold: (1) How and in what sense of the word *competitive* are these groups constructed? (2) How far, within these group limitations, can the prices of products be found proportional with the pains or sacrifices attaching to labor and saving?

> Now what is the explanation of this singular confusion of thought and perversion of facts? Obviously this — the whole problem of industry is looked at exclusively from the capitalist's point of view . . . high wages are looked at as "neutralizing" industrial advantages, as if nothing were gained that did not come to the capitalist's maw. . . . "Dear labor," says Mr. Brassey, . . . "now the great obstacle to the extension of English trade." "High profits," Cairnes objects "are an obstacle in the same sense." [4]

The economists earlier than John Stuart Mill had, it is true, commonly taken for granted that wages were proportional with the burdens of labor. It was, indeed, Ricardo's especial task to get the doctrine that commodities exchange against one another in the ratios of their labor pains of production into harmony with the doctrine that commodities exchange also in the ratio of their entrepreneur costs. With money costs taken by sheer assumption to be proportional with real costs, both the employer and the employee points of view were presented as tenable.

The tenability of this Ricardian attempt to justify both the employer and employee standpoints of cost, through basing employer costs on employee costs, — relative prices conforming to relative entrepreneur costs and thus to relative pain costs, — it is no part of the present task to examine, but solely to make clear Cairnes's position with regard to it. He denounced the doctrine for what he regarded — rightly enough as the present writer holds, but does not argue — as its evident falsity to fact. It, plumply, was not — and is not — so. Never are wages proportional to labor burdens. And Mill, as Cairnes notes, not only admits but asserts precisely thus much.

What then could be done, in view of Cairnes's conviction that nothing both significant and ultimate could be done with employer — capitalist's — cost?

Cairnes's offered solution did not begin with wage

4. Cairnes, op. cit., chap. iii, sect. 4.

costs or with interest costs, or with wages and interest in any form, cost or other, but ended with them. They are presented as merely distributive price shares out of the price products which, causally speaking, labor and capital, not wages and interest, have brought into being. Ultimately, wages, while doubtless employer costs, do not, Cairnes insists, determine product prices, but are determined by prices,—derivatives from prices rather than causes of them, — the prices of the products reflected back to apportion wages to labor, rather than the labor prices carried forward to attach prices to the products: "the principle that cost of production determines values . . . merely amounts to saying that values are in proportion to the elements of which they are made up." Whether for well or ill, therefore, Cairnes's view belongs — so far and in this emphasis — to a later time:

> The remunerations come from the prices of the commodity in each case — [implicitly and essentially a productivity theory of distribution]. (Chap. iii, sect. 5.) — If wages stood in any constant relation to that which really constitutes [the laborer's] cost, . . . wages in all occupations, in all countries, and in all times would be in proportion to the severity of the toil which they recompensed. (Chap. iii, sect. 3.) — The value of the product resulting from industry forms . . . the source from which . . . industry is remunerated. . . . It is *the value of the product* from which the remuneration of all concerned in the creation of that product ultimately comes. Wages and profits in each branch of industry are thus derived from the value of the commodities proceeding from that branch of industry, and . . . other things being the same, the aggregate of wages and profits received by any group of producers will always vary with the aggregate of the value of the commodities which they produce. (Chap. x, sect. 5.)

But if in terms of wages and interest the prices of the products are reflected back to the labor and capital that bring the price products into being, whence, in Cairnes's view, were derived the prices of the products, the value-volumes to be distributed?

The appeal was to Ricardo's interpretation of labor as a leveling and proportioning influence. Values of products, in Ricardo's view, did not come into being through the passage over to these products of any values originally resident in labor. Surely labor had a price, its wages; but Ricardo did not attribute to labor — or for that matter deny to it — any real and ultimate value of its own. Things had real values as distinguished from market values, according as they incorporated human labor. But this position did not necessitate, or even in Ricardo's view imply, that labor itself had any real value. In this emphasis wrote Ricardo to Say:

> I do not say that it is the value of labor that determines the value of the product. This is a view that I am trying with all my power to refute. I say that it is the comparative quantity of labor necessary to production which determines the relative values of products. [And again]: the proportion between the quantities of labor necessary for acquiring different objects seems to be the only circumstance which can afford any rule for exchanging them for one another.[5]

And thus, altho employer costs may be appealed to in order to explain any particular price, it is to this labor proportioning process that reference must be made to explain the relative volumes of commodities and their relations of exchange to one another as reported in their relative prices. These results, it is true, are worked out through the entrepreneur mechanism: labor will be changed in direction so long as better price results are promised by the change — whenever, that is to say, the price displacement would else be greater than the price product—opportunity cost, essentially. Through changes in relative volumes of products, therefore, as Ricardo insists, relative prices will be so modified as to minimize, or entirely to cancel, such emerging differentials as may attend the production of different com-

5. Ricardo, Political Economy, Gonner's edition, chap. i, sect. 1, par. 10.

modities. And it is doubtless true that the entrepreneur process works in this leveling way; only that it is not true that it works to proportion values to labor-burden costs, but only to employer-outlay costs. To Ricardo, however, it seemed true that, were all laborers working under their own direction, this proportionality of prices to labor burden would obtain. If so, the mere interposition of entrepreneurs could not, he assumed, disturb the principle. In fact, however, — clearly enough, — the opera singer and the day laborer do not achieve products or price remunerations proportional to their pains, nor would they, even were the two laborers producing directly on their own account. Nor is it true that their products are proportional to their possible alternative products. The leveling significance of costs to make prices proportional with costs attaches only to employer costs.

Ricardo's view — a position necessary to his case — that wage costs are proportionate to labor burdens involves, then, the serious error which, as we have already seen, was noted by Mill and repeatedly emphasized by Cairnes. *But Cairnes nevertheless insists that, within certain limits, it does still hold true that the relative prices of products are proportional to the relative labor burdens*; and, moreover, that conditions might obtain through which still larger areas of fact would fall within the proportion generalization. Were different men of practically one level of intelligence, strength, and industriousness, and also of equal adaptability to different occupations, and were they equal also in their opportunities for training, — if, that is to say, differentials in native qualities and in inherited opportunities were wanting, to the degree that no occupation could be relatively so scantily manned as to occasion relative scarcities of product with reference to the demands of con-

sumers, — prices would, as Cairnes insists, come to be proportionate to labor burdens.

Cairnes recognizes, however, — indeed he strongly urges as the basic fact in his analysis, — that under actual conditions society has become wealth-stratified — with opportunity mainly a matter of inheritance. Therefore the relative outputs of goods cannot be determined by the relative burdensomeness of the labor involved in producing them; nor can the wage incomes derivative from these product-prices be similarly proportional. Because of the economic stratification of society and of the accompanying differentials of inherited opportunity, there is, Cairnes insists, a corresponding stratification in the relation of labor burdens to the price products of labor and to the wage remunerations derivative from these price products.

Cairnes's non-competing groups are constructed to take account of this economic stratification and of the attendant differentiations in inherited opportunity. Agreeing that in large part products do not, under actual conditions, bear prices proportionate to the labor of production, and that the traditional labor-pain explanation of the exchange relations of goods violates obtrusively and demonstrably the facts of the existing economic situation, he sets himself to the task of determining whether at all — and, if at all, within what limits — this proportionality of prices to pain burdens is actual: *how far is the labor-cost theory of value tenable?* It would, he thinks, be tenable in a non-stratified society.

Cairnes's position is that there are certain groups, strata, in society, in which, relatively to the membership of the respective groups, — and only thus relatively, — the proportionality holds for the prices of the products produced by the different members of each particular group to the labor burdens of the respective members, and therewith for the derivative wage returns.

A non-competing group is by definition a group meeting these requirements. By definition, a non-competing group is made up of those producers whose labor incomes are proportionate to their respective labor burdens.

But is this proportionality, as it lay in Cairnes's thought, precise or rough or average? This must depend upon the minuteness of the grouping. Taking it that, say, four groups are conveniently or practicably to be recognized, the proportionality can be only of a rough or average sort. If, however, any grouping by averages holds, the objection is prompt that this is to cancel the very purpose of the grouping. One sole group would suffice under this average test.

But, in any case, what is, after all, the precise constitution of any particular group, and in what sense are the members of it in competition with one another, the while that these members are not in competition with the members of other groups? Is the grouping vocational entirely or in part, or is each group made up as a cross-section of different occupations? Schematically our problem may take the following setting:

Lawyers' fee incomes	Engineers' labor incomes	Teachers' salaries	Preachers' salaries	Merchants' labor incomes
$12,000 to 9,000 inc.	$12,000 to 9,000 inc.	$9,000 to 7,000 inc.	$8,000 to 7,000 inc.	$14,000 to 12,000 inc.
8,000 to 6,000 inc.	8,000 to 6,000 inc.	6,000 to 4,000 inc.	6,000 to 4,000 inc.	11,000 to 7,000 inc.
5,000 to 3,000 inc.	5,000 to 3,000 inc.	3,000 to 2,000 inc.	3,000 to 2,000 inc.	6,000 to 4,000 inc.
3,000 and under	2,999 to 2,000 inc.	1,999 and under	1,999 to 1,500 inc.	3,000 to 1,500 inc.
	under 2,000	.....	1,499 and under	1,499 and under

Overseers' wages	Bricklayers' wages	Machinists' wages	Carpenters' wages	Day laborers' wages
$4,000 and under	.....	.....	.....	.....
.....	$3,000 and under	$3,000 and under	$2,500 and under	.....
.....	.....	.....	.....	$2,000 and under

Is the grouping occupational? Instead, it appears to be of the horizontal sort, a cross-section of occupations, the principle of the grouping mainly or entirely one of compensations. Nor, on the face of things, is this interpretation fairly open to question. Cairnes states the situation as follows:

> What we find is not a whole population competing indiscriminately for all occupations, but a series of industrial layers superimposed upon one another . . . in such some order as this: first at the bottom of the scale . . . the large group of unskilled laborers . . . Secondly, there would be the artisan group, comprising skilled laborers of the secondary order, carpenters, joiners, smiths, masons, shoemakers, tailors, hatters, with whom might be included . . . the small retail dealers. . . . The third layer . . . producers and dealers of a higher order, whose work will demand qualifications only obtainable by persons of substantial means and fair educational opportunities, . . . civil and mechanical engineers, chemists, opticians, watchmakers . . . the superior class of retail tradesmen. . . . A fourth could contain members of the learned professions as well as persons engaged in the various careers of science and art, and in the higher branches of mercantile business. . . . Not an exhaustive classification: I attempt nothing of the kind; but merely seek to exhibit in rough outlines the forms which industrial organization, under the actual conditions of modern life, tends to assume . . . my object being . . . to furnish help toward a more distinct apprehension of the limitations imposed by social circumstances on the free competition of labor. . . . I am far from contending for hard lines of demarcation.[6]

6. Cairnes, op. cit., chap. iii, sect. 5.

But if, in principle, the grouping is horizontal, it must, on the face of the case at any rate, be clear that to talk of competition between lawyers and engineers, or between merchants and artists, is to make nonsense of the classifications. In what sense and how far the ten-thousand-dollar lawyer competes with the five-thousand-dollar lawyer may be open to question; but the competition is certainly closer and clearer than that of the high-income lawyer with the high-income painter or sculptor. And if the same industry, or occupations closely similar, must go along with some sort of equality, loose or precise, in labor returns, no one group can ever include more than one subdivision in some one vertical column in our table — the $11,000–$9,000 lawyer area, for example; or the $11,000–$9,000 sculptors; or carpenters of the $3,000–$2,000 grade.

And further: if the construction of the group includes those persons whose ratios of income to labor burden are the same or approximately so, it might readily include the $2,000 teacher who keenly enjoys his work along with the $10,000 lawyer or merchant of less enthusiasm for his particular field of effort. Of two $10,000 lawyers, the one disliking his work would fall into one group, and the one enjoying his work into another — or, as well, into none, having no labor-burden quantity to serve as a term in a ratio. And the artist, or that famous professor who received $5,000 per year for doing what, if he had to, he would pay $5,000 for the privilege of doing, could belong to no group, there being no burdens to be set over against rewards. Nor, if the groups are constituted on this ratio principle, — or, indeed, on any other principle than that of occupation or of income, — is there any possibility of any one determining for himself to what group he belongs, or of searching out someone else to find this out for him. It would be like the membership

in the invisible church of Catholic dogma — all of the invisible membership to be saved along with the visible members, and therefore no possibility of certainty that any particular individual is going to get damned. Any individual not already included in the visible membership may belong to the other membership.

And unless the groups are occupational, there can commonly be no competition among the members. And if the groups are occupational and the presence of competition is the test, there is plenty of it, and of the plainest sort, across group lines — the low-grade with the medium-grade lawyer, or the small grocer with the large.

It may well be that all these objections stress difficulties that are beside the point. In fact, Cairnes's use of the term "competitive" works to make his meaning gratuitously obscure. But still, is the grouping a horizontal, a cross-section grouping? Taussig at any rate, paraphrasing Cairnes in most respects, appears so to interpret it:

> Amid the great variety of occupations and of wages, certain broad groups may be distinguished . . . called, in the phrase introduced by Cairnes, non-competing groups; non-competing in the sense that those born or placed in a given group usually remain there and do not compete with those in other groups.[7]

By implication, however, and as Cairnes holds, they do compete with one another — if only one could be sure of the connotation of the word competition, and could attach any definite date to the taking place of it. Taussig writes:

> For most men it is very difficult, for many it is impossible, to move from the group in which they find themselves into one more favored. . . . Five groups: (1) . . . the day laborers, so-called; the diggers and delvers who have nothing to offer but their bodily

7. Taussig, Principles of Political Economy, vol. ii, p. 134.

strength. No doubt . . . there are some gradations . . . capacity and willingness to labor. [Which, by the way, should set their compensation appreciably askew when viewed as ratios to labor burdens, unless, indeed, the grouping is by averages. And if it is by averages, any group, no matter how inclusive, may be average-wise constituted.] . . . Education rarely carried beyond the minimum; . . . children set to work at the earliest age at which they can earn something; the maximum wages of any individual earned as soon as he is full grown, and become less rather than greater as middle age is reached; factory employees whose work is of the simplest sort. . . . (2) Those who, while not needing specialized skill, yet have some responsibility, and must have some alertness of mind . . . motormen, . . . miners, . . . an immense number of factory workers . . . must have some intelligence in watching and applying machines . . . wages commonly paid by the week; . . . a greater continuity of employment. . . . (3) The aristocracy of the manual laboring class: the skilled workers. Such are carpenters, bricklayers, plumbers, machinists; the whole range of occupations where there is need for a sure eye, familiarity with tools, a deft and trained hand. . . . It is among workmen who possess such ability that trade unions are strongest. Some accumulation of property is possible. . . . Some pride in the occupation is developed, and a spirit of independence. Education, too, is carried further. . . . The children are usually . . . prepared by apprenticeship or otherwise for a particular trade. . . . (4) The group that approaches the well-to-do, the lower middle class . . . clerks, bookkeepers, salesmen, small tradesmen, railway conductors, foremen, superintendents, teachers in the lower grades. Education is carried further. . . . High school or academy is usually entered and often attended through its entire course. Marriages take place at a somewhat later age; and some endeavor at saving or accumulation; a demarcation of social feeling that *does not correspond to differences in wages; for in modern communities the rate of pay in this fourth class is often little different from that in the third class.*[8]

The grouping here, obviously, is not precisely according to incomes. The emphasis shifts to considerations of social repute—items on the cost rather than on the

8. Taussig, op. cit., vol. ii, p. 135. Italics are mine. — It should be stressed also that Taussig, like Cairnes, disclaims any attempt at drawing hard lines of demarcation. Instead, the five groups "shade into another by continuous gradations; but they are distinguished sufficiently to bring into relief some important questions as to the relations between social classes and the fundamental causes acting on distribution and on values." Ibid., p. 141.

return side, and relevant, therefore, solely or mainly, as affecting the ratios of income to sacrifice. This fourth class gives its children the better opportunities, even tho it has not the larger incomes — perhaps, therefore, spending up nearer to its possibilities. But still, in any case, the classification is clearly one of the cross-section sort.

> (5) Finally . . . those who regard themselves as the highest class, and certainly are the most favored class: . . . the professions, so-called — the lawyers, physicians, clergymen; teachers of the highest grades; salaried officials; . . . business men and managers of industry. The associations are with property and accumulations. Education is carried to the highest level. . . . Earning power does not begin early . . . a stage of slow start and slender beginnings . . . marriage delayed until late; wives largely ornamental; servants.[9]

Clearly, then, the groups are cross-sectional. But equally clearly each member can compete with only such other members of the group as are engaged in the same or similar lines of production — therefore with only a small fraction of the entire membership. And similarly clear is it that each member competes with a large number of producers in his particular field of production who are nevertheless outside his group, because falling within other income strata.

Not less clear is it also that, if a group is made up of those having the same unit compensation per unit of burden, the group membership need not be restricted either to any one vocation or to any one level of compensation. Under this interpretation of "competing" and of "non-competing," the group notion lapses into sheer nonsense.

It is, however, promptly to be said that primarily and originally the groups in question are not groups by the

9. Taussig, op. cit., vol. ii, p. 137.

fact that they are producing for the same market, or that the members of them are at present competitors with anybody anywhere. They are groups originally constituted by tests of the economic status of parents, and are made up, *as of that date*, out of individuals in their economic minority, — legal infants, — these groups, so constituted a generation back, existing down into the present according to the original principle of selection — groups whose sole relevancy to their original and later membership under the grouping principle is that, *as of the date of this earlier time*, the group — or the parent constituents of it — were putting out children, most of whom, no doubt, would in their due and later time, enter into business competition against other producers — children, however, who, at the original date of membership fixation, were not competing with one another or with any one else, and were therefore neither competitors nor non-competitors for grouping purposes or for any other purposes. In fine, the grouping is essentially one of parents — or of parents together with their children — according to the means of these parents. They are groups, moreover, which later, abiding always by their original principle of selective grouping, contain members who competitively do later enter productive activities, but who do not in the main ever come to be competitive with one another, but rather, later, with the members of the same occupational groups. And, clearly enough, such pains or expenses in the training of the offspring as are to be allowed for, must mainly have attached, not to the offspring, but to the parents.

The competition with which the grouping principle has to do is, therefore, a competition in the sense solely of the efforts of parents to equip their children for these *later* contests and relations which *competition* commonly

connotes. In this sense of competition, however, the competitions *of these offspring* do not take place as of the period of preparing to select their later lines of productive activity, but only as of the later time when these lines of activity come actually to be pursued. Still less does the competitive principle that guides the constitution of the group prescribe that later these offspring, having grown to more mature estate, shall then become competitors of one another. This particular sort of competition, in such sense as it was actual, went on a generation back — the competitive venue changed in point of time from the now to this earlier then. All that the group at present signifies for present purposes is that the members of it — not now competitors of one another — were earlier the children of homes providing such approximate equality of opportunity that the offspring are now able to get — it is alleged — approximately equal returns from their labor, and returns that also are approximately proportional to the labor burdens now incurred; whereby it comes about *as a present fact* that the group comprises those individuals whose labor returns are proportionate to their labor burdens. It is, therefore, no part of the principle of the present grouping that there are or that there are not any present competitive relations, in the commonly accepted sense of *competitive*.

Can these things really have been after these ways in the thought of Cairnes? Recall the problem as Cairnes set it to himself: to find how far the earlier doctrine that made the prices of commodities proportionate to the burdens of labor could be defended. Recall the nature of the group as fixed by definition: those people with whom, because of their substantially equal early opportunities, there goes approximately the same ratio of remunerations to labor burdens. And note further

certain unstressed but important phrases in Cairnes's report of the construction of his groups: his second group

> comprising skilled laborers . . . carpenters, joiners, smiths, masons, shoemakers, tailors, hatters, etc., etc., . . . with whom might be included the very large class of small retail dealers, *whose means and position place them within the reach of the same industrial opportunities as the class of artisans* [italics mine]. The third layer . . . whose work would demand qualifications only obtainable by persons *of substantial means* [parents?] and fair educational opportunity [children?]. . . . Above these there would be a fourth whose ampler means would give them a still wider choice. . . . My object . . . to furnish help toward a more distinct apprehension of the limitations imposed by social circumstances on the free competition of labor. . . . The average workman, from whatever rank he be taken, finds his powers of competition [of selecting his prospective line of competitive production] limited for practical purposes to a certain range of occupations, so that, however high the rate of remuneration in those that lie beyond may rise, he is excluded from sharing them.[1]

Taussig, in turn, suggests, tho not quite so definitely, the same ultimate principle of grouping — the wage differentials turning on differences in parentally provided opportunity — an occupational stratification of society by virtue of the superior advantages that homes of larger means and of better social breeding are able to provide. In the lowest group "education is rarely," Taussig notes, "carried beyond the legal minimum, and children are sent to work as early as they are able to earn something." The work, being mainly a matter of muscle, grows less effective, as also more scantily paid, after early maturity. But in the third, the skilled-labor group, there is some accumulation of property. Education is carried further. The children mostly finish the grammar school curriculum, and, in acquiring the training requisite for any particular skilled trade "are usually prepared by apprenticeship or otherwise. . . . Next comes the group which approaches the well-to-do." Its

1. Cairnes, op. cit., chap. iii, sect. 5.

make-up is of bookkeepers, small traders, foremen, superintendents, etc. "The parents more ready and better able to support the children through a long period," the high school "often attended through its entire course." Nor, plainly, is the demarcation entirely one of wages: "For the rate of pay in this fourth class is often little different from that in the third class." The difference, one infers, is merely in the fact that the offered opportunities are socially the better.

In the fifth group — for Taussig classifies in five instead of four groups — "the associations are with property and accumulation. Here are the professions so-called — the lawyers, physicians, clergymen, salaried officials . . . in positions of responsibility and power; . . . business men and managers of industry." Note, however, that here not the children but the parents receive emphasis in the grouping: "Education is carried to the highest level . . . not only a long period of training and education but an additional stage of slow start and slender beginnings. Marriage is delayed." [2]

Nothing in all this can fairly be taken as decisive as to whether the grouping is one of the parents whose means and attitudes fix the opportunities of the children; or of the children whose opportunities are determined by the parental situation and disposition; or of both together. Nor does it greatly matter. In point of later application, the children solely would represent it. In any case, it is a grouping that dates from a time before competitive production begins, and has solely to do with the conditions determining the selection of occupations, and thereby with those competitions that shall later come to be actual. But never, obviously, at any later time will the man who selected the law come to be a competitor of those fellows of his group who at this

2. Taussig, op. cit., vol. ii, p. 127.

earlier time had somehow decided to become engineers. Intra-group competition can be present — at no matter what date — only in the sense that, from among those occupations that were open to all members of the group, there did *then* take place a preparation and a selection. Moreover, such choice of occupations as the parental situation carried with it could, at the date of selection, be common to all the members of the group only in the sense that no financial or social veto had bearing to limit the choice of occupation — not in the sense that each member was equally fit with every other to become teacher, lawyer, sculptor, or engineer, or was as fit as any other member to become preacher, painter, sculptor, or lawyer, according as the prospective financial advantages should impersonally advise. The group is obviously merely one of equality in the objective conditions bearing on the choice of occupations, and therefore on the field of later competition.

So interpreted, this doctrine of non-competing groups may appear to be merely a laborious and perplexing method of reporting the economic stratification of society through the inheritance of opportunity. That, through lack both of training and of nourishment during early life, poverty tends to perpetuate itself, is not far from a commonplace. Inheritance is more than heredity, and carries along with it both good and ill fortune, irrespective of influences of native capacity. The Miltons that remain mute and the singers dead with all their music in them are to be accounted to the poverty that smothered or killed. But thus much the doctrine of non-competing groups did not need either to report or to formulate. And of thus much the doctrine of non-competing groups was a most awkward and perplexing report and formulation. And even tho, for the special

purposes of economics, the facts called for a new interpretation or for further analysis, the terms selected as descriptive were most unfortunately, and even disastrously, chosen. In no sense commonly attached to the notion of competition, could the relative wealth of parents, or the educational advantage accruing therefrom to their children in the selection of lines of gainful activity, be termed either affirmatively or negatively *competitive* — any more than the force of gravity can be asserted to be more or less brown or less or more savory. Under similar tests of meaning, the relation between engineers and teachers of equal salaries is not properly to be termed competitive, or the relation between different lawyers to be termed non-competitive merely through the fact of differences of incomes. Small grocers compete with large — if "competition" has any meaning.

But it still remains true that influences of training that turn on parental means and position do measurably create or modify opportunity, and do thereby affect the returns on individual effort. The better paying occupations are commonly the most readily open to individuals having these advantages of social position and of training, which derive, in turn, in large part, from parental resources and leverage. Were these differential advantages absent, the disproportion between labor burdens and labor incomes would be less marked.

Nevertheless the disproportion would persist — in such sense, at all events, and in such degree, if at all, as the labor burdens of different individuals are rightly comparable. Cairnes's assumption that in the absence of differential opportunities labor returns will be proportionate to labor burdens, is heroic in the extreme, and would be almost equally untenable, even were not differ-

ences in native intelligence and skill to be allowed for. All that his two assumptions could together signify would be to make the disproportion less extreme — not to cancel it. The conceit, for example, that each human being has a special resemblance to some particular lower animal, may have this much of truth in it, that each human being looks less unlike some one particular animal than any other animal. A Frenchman or a German does not resemble — it may be assumed — either a rhinoceros or a sea-serpent, but still looks less unlike the rhinoceros than the serpent. Similarly labor hires are never proportionate to labor burdens, but they might be still more or still less disproportionate than they are. At the best these groupings by Cairnes report nothing more than those strata in society in which the disproportion is less extreme, precisely because some of the influences making for disproportion are less marked. No objective grouping of laborers is possible — but only a grouping by definition — whereby the wages of labor can be proportionate to the burdens of labor. And even were this proportion true in some average sense, this introduction of averages cancels, as has been remarked earlier, the significance of the doctrine; the application of the average principle does not wait upon any sort of grouping. All laborers would remain where they originally were — constituting one group.

Clearly enough, moreover, the increased occupational fluidity of labor that would attend the elimination of these differentials of inherited opportunity — all laborers members of one and the same group — would not suffice to save the doctrine that product prices and wages either are, or "tend" to be, proportional with the burdensomeness of productive labor. True it doubtless is that partly or mainly through inheritance, as distinguished from heredity, society is loosely stratified, so

that, in General Booth's phrase, ten per cent of the English are not so much born into the world as damned into it, — the while, it may be added, that still other human beings are as distinctly blessed into it, — all of this signifying, for present purposes, only that the disproportion between labor pains and labor returns becomes still more marked. But even in the absence of all these social and economic handicaps of stratification, a large residual disproportion would still obtain. Take, for example, five sons in the same rich and socially approved home: is it to be assumed that they will all arrive into the same labor-income group, as against distributing themselves among all four; or that, for such as do come into the same group, the same ratio will approximately obtain between labor burdens and labor rewards? Is it not, indeed, fully as probable that one of them, not greatly wearying himself with efforts for gain, may earn correspondingly little by his labor, while another works more grievously and gains correspondingly more; the two belonging, therefore, — if only by virtue of an unfortunate definition, — to one and the same group, despite their differences of income?

And here it is again to be stressed that these two sons need not be competing with each other in any sort of way, belonging instead to a group the membership of which was determined a generation earlier — at which time, likewise, they were not in any sense, either usual or intelligible, competing with each other, but only deciding that they were never to become competitors.

Is there any way out of this seeming *impasse*? Cairnes's attempted exit was by abstracting from all influences of native skill and adaptation. He interpreted all cases of *acquired* skill as acquired on such terms of burdensomeness to the learner (or was it to his father? and was it not in either case rather expense

than pain?) as should reinstate the proportionality of returns to burdens. *Native* skill, that is to say, Cairnes disposed of under the head of monopoly — setting it thereby, as he thought, outside the necessity of consideration, and leaving its remuneration to be explained through the law of reciprocal demand; which law, as elsewhere he makes clear, resolves itself merely into the familiar law of demand and supply. But all remunerations, monopoly or other, are compassed by this explanation. In any sense in which it is adequate, it must be equally adequate for the remunerations within each group, and for the remunerations of any group relative to the remunerations of any other.

Nor, in fact, is special skill, either native or acquired, any more a monopoly than is special blockheadedness. A man may as distinctly be specialized in his particular line of occupation by his special lack of fitness for any other occupation as by his exceptionally high capacity for the particular occupation. Nor does special skill commonly connote monopoly, except when the possession of it goes along with the absence of competition by other people. Most skilled people are vigorously engaged in competition. Monopoly is, in degree, merely the absence of competition — its antithesis.

It is, then, clear that equal inherited opportunities will suffice for the requisite grouping by which labor rewards shall be proportionate to labor burden — only upon the assumption not merely of equal special and equal all-round capacity, but also of equality of interest in the rewards of labor and equality of disinclination to the performing of labor. The human materials must offer interchangeable units in all relevant aspects, and not solely in the aspect of inherited opportunity. If, then, as Cairnes believed, the labor-burden theory of relative prices and of relative labor rewards must be

abandoned, except so far as the grouping principle can avail to support it, it becomes fairly obvious that it must be abandoned altogether.

But if doubt shall still exist under this head, let it be called to mind that many occupations are not burdensome at all. The Harvard professor who received that $5,000 annually for the services which, if he had to, he would pay $5,000 for the opportunity to render, — his veracity for present purposes being unquestioned, — makes the issue clear. He had no burden to serve as one term in a ratio. The artist often, and not rarely the laboratory worker, — perhaps occasionally the classroom man, — quits work not through its having become tedious or unattractive, but solely to turn to some still more attractive thing — golf, or skating, or billiards. It is not inconceivable that all work, if rightly distributed in the right quantities, should become pleasant work.

In truth, such approximation to a complete and perfect labor fluidity as might arrive with the elimination of the differentials and handicaps of inheritance — *not*, however, of heredity — would suffice to guarantee neither approximate equality in labor rewards, nor, still more obviously, equal ratios of rewards to burdens. Assume, indeed, that labor becomes as fluid as capital in its most abstract form of suspended purchasing power, — which equality in fluidity, Cairnes argues, would be approximately guaranteed by the newly maturing supplies of labor, if only these accruing supplies were not specialized in opportunity through the influence of inherited advantages of the purely objective sort, — how far, nevertheless, is it true, even of capital, that its unit rewards in interest are proportionate to the burdensomeness of saving these units? Even agreeing that abstinence is always, or even sometimes, a pain, — which this writer categorically denies, — these different

dollars of savings are accumulated by all sorts and conditions of savers. Why not, then, a series of capitalist groups — a much more promising undertaking? No matter, for the present, what capital is, whether saved-up labor or what not, or from what various sources derived, some of it clearly — even if not all of it — continues in existence through individual abstinence; and it is as surpassingly obvious as it is tragically true that neither the relative prices of the products derivative from its use nor the derivative dollar returns upon it are proportionate to the abstinence burdens on which the existence of the capital may have been conditioned. Against the background of spending power, the rich collect on their saved dollars much against little, and the poor little against much.

There are three things necessary to the validation of the pain theory of values — relative prices: (1) the reduction of all labor to a burden homogeneity, in such sort that not only ratios of remuneration may be predicated on it relatively to labor burdens, but also money compensations per unit be shown to be proportional with it. (2) Saving must not only be established to be burdensome, but burdensome in such homogeneous fashion that money returns may be predicated upon it proportional to these savings burdens; and (3) inasmuch as labor effort and savings abstinence both enter on equal terms as determinants of price or as derivatives from price, these homogeneous labor burdens and these homogeneous abstinence burdens must be somehow reduced to a homogeneity with each other, in such fashion that all shall command hires and all products command prices proportional to the combined labor burdens and abstinence burdens on which have been conditioned these hires and these products.

Space remains only for the present writer to assert — but obviously not to argue — that with no one of these prerequisites has the labor theory of value made good its case. The present discussion may, at any rate, have proceeded far enough to make clear that with reference to no one of these three different requirements did Cairnes, through his exposition of his non-competing groups, afford any appreciable contribution. Instead, his discussion greatly advances the view that each of these requirements is impossible of being met.

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GERMAN INDUSTRIAL ORGANIZATION SINCE THE WORLD WAR

SUMMARY

Industrial combinations before the war, 82. — State regulation of cartels during the war, 87. — Effects of the socialization movement, 90. — Reorganizations in the potash, coal, iron, and electrical industries, 90. — Formation of "concerns" after the war, 93. — Comparative advantages of different types of combination, 96. — Decline of the cartel movement after the war only temporary, 99. — The coal and iron syndicates, 101. — Regulatory legislation of November, 1923, and its results, 106. — Further problems, 109.

I. Pre-War German Industrial Organization

German industry during the early decades of this century was relatively stable. The disturbances in the money market being ended, a period of comparatively continuous development succeeded the great crisis at the beginning of the century. This crisis was caused principally by over-rapid technical development, with which the formation of capital did not keep pace. Subsequent reactions in 1907 and 1913 did not take the form of real crises. This stability in German economic life was in large part due to the cartels, which were working toward a stable price situation. During the crisis of 1909 the Rhenish-Westphalian Coal Syndicate, the Coke Syndicate, and a number of other organizations in the iron industry firmly stood their ground. They acted as moderators, checking the rise of prices during the peak of the market, while they did not suddenly and sharply decrease prices during the decline. This was of indubitable benefit to the industries using their products and the whole national economy.

There were of course only a few syndicates which

during the peak of the market set a conservative example in raising prices. Many cartels instead strongly forced prices upward and had to dissolve during the crisis. But the tendency toward the formation of permanent syndicates progressed. We might mention especially the *Stahlwerksverband*, which was founded in 1904 and combined many important products and semimanufactures of the iron industry, such as billets, girders, rails, tinplate, rolled wire, etc. The cartels, both those more and those less closely organized, rapidly gained ground in numerous other industrial branches. Especially noticeable during these years was the increasing penetration of the cartel movement into the textile industry, where, on account of the great number of enterprises (principally under private control) and the diversity of their products, organization was confronted with greater difficulties than in the much more concentrated basic industries. The textile cartels were limited usually to loose agreements concerning conditions, determination of prices, and restriction of production. Nevertheless they exercised great influence upon commercial intercourse, especially upon marketing.

The growing tendency toward organization in trade, both wholesale and retail, is especially important during this period. Here should be mentioned also buyers' organizations, on a coöperative basis, most noticeably among the wholesalers but quite often also among the manufacturers. And since the workers also organized more and more in trade unions, it might be said that the characteristic feature of this era is a tendency of the industrialists to fight the economic battle more and more in organized groups and aim perhaps at a collective monopoly.

But even in this period the cartels were by no means the only form of German industrial organization. They

themselves helped to develop besides their "horizontal concentration" a "vertical concentration"; namely, the combination under one management of producers of raw materials and plants using these materials. While the coal market was still open to free competition in the early 90's, it had been more advantageous for the blast furnaces to buy their coke. Now, with the stable organization of the coal syndicate, it was more profitable for the furnaces to mine their own coal, and for technical reasons it proved advantageous to add several branches of manufacture. Rolling mills, which had to buy their raw materials from great combines, were thus effectively put at a disadvantage and could compete less and less. In this way there developed the great combined enterprises of the iron industry, and the word "trust" appeared. But they were not real trusts, not a monopolistic amalgamation of the entire industry. These appeared only in a few isolated instances in special industries, such as the combination with English companies in the dynamite trust, or the amalgamation of all German rice mills in a holding company, the Reis- und Handels-Aktiengesellschaft, and possibly in the storage-battery industry.

But with the increase of stock companies, fusions developed in many industries. Still greater was the acquisition of interests in other enterprises, as had long been common in banking circles in the absorption of provincial banks by the great banks in Berlin. The practice of acquiring interests, as in America, developed principally in the electro-technical industry and among builders. Such organizations were first and foremost in the form of security-owning and financing companies, which I described for the first time for the most important countries in my *Beteiligungs- und Finanzierungsgesellschaften*, 1909 (4th ed., Jena, 1923).

A special form of organization which attained a certain importance during this period was the "community of interests" (*Interessengemeinschaft*). This is primarily a policy of pooling the gains of a small number of business ventures. By this means risk is supposed to be evenly distributed and equalized. In most cases there is an exchange of managers and directors and often participation through the buying of stocks. Such organizations appeared as early as the 80's, especially in banking. From this period dates also the combination of the largest powder manufacturers with the above-mentioned dynamite trust, which still exists to-day. The first important *Interessengemeinschaft* after the crisis of 1900 was a twenty-year agreement made in 1902 by the two great German steamship lines, the Hamburg-American Line and the North German Lloyd, and the International Mercantile Marine Company, a shipping trust which Morgan formed out of nine American and English companies. It was, in the main, a territorial agreement, but there was also provision for a division of earnings between the German companies and the trust. In accordance with its terms, this agreement terminated at the outbreak of the war.

At the end of 1904, especial interest was aroused by the two great *Interessengemeinschaften* in the chemical industry; the first, based upon an agreement to exchange shares, between the Höchster Farbwerken and the firm L. Cassella & Co.; the second, based upon a distribution of earnings in the ratio 43: 43: 14, between the Badische Anilin- und Sodafabrik, the Elberfelder Farbenfabriken and the Berliner Aktiengesellschaft für Anilinfabrikation. Many other *Interessengemeinschaften* were organized about this time, in the iron industry, in banking, etc.

One phenomenon of the pre-war period deserves con-

sideration which, tho not really a special form of organization, became of great importance for the development of German industry during and after the war. This was the penetration of wholesale trade into the large industries. This too is in part a result of the cartels, by whom the wholesale trade was forced from its controlling position and made very dependent upon industry. Several very powerful leaders of the coal and iron trade — besides the well-known name of Stinnes, we may mention Otto Wolff, Klöckner, Später, Friedländer and Arnhold — acquired large holdings in the basic industries, and even controlling influence over certain large enterprises. All these forms of close combination are now commonly referred to as "concerns."

II. German Industrial Organization during the World War

That the German army was extraordinarily unprepared at the beginning of the World War is comparatively little known in foreign countries. As a result of this unpreparedness there immediately developed an enormous demand for army supplies. Clever dealers took advantage of this demand at first, and some time elapsed before the government realized that the various industrial organizations of Germany could be utilized to satisfy this sudden demand. The cartels in particular, however, soon played an important rôle. Without their aid the quick acceptance and speedy execution of enormous army contracts would perhaps have been impossible in many industries, since the cartels knew the exact capacity of each of their members. This is true of the demand for coal for the railroads, as well as for the gasoline demand of the army and navy; the furnishing of the required kinds of steel for the manufacturing of

cannon and ammunition, and the supplying of numerous other materials of which no one had thought. It is easily comprehensible that this sudden demand (even disregarding the quickly felt scarcity of raw material) could be thus quickly met only with the assurance of greater profits. The rise in price, however, was much greater in cases where the government turned, not to industrial organizations such as cartels, but to single contractors or middlemen. The chief profits in the beginning went to skillful middlemen, since the authorities did not yet know how to deal directly with the industrial organizations.

It cannot be denied that many cartels, especially the well-known contracting cartels, were organized only after the outbreak of war, in order to exploit the urgent army needs; while later agreements between traders developed to exploit the increasing scarcity of goods. But one can say that as a rule the well-known cartels, at least, showed moderation in fixing their prices. The fixing of maximum prices by the state was not so often necessary in their case; and, if necessary, could be more easily enforced. Many cartels made it their business to see that certain materials which had to be husbanded were used only in minimal quantities. They also facilitated the amalgamation of enterprises in order to make possible a rational production. The liquidation of foreign enterprises, which the Entente, following the English example, did not hesitate to undertake, was frequently facilitated through the help of the cartels.

Nevertheless, in the very beginning of the war, the government was forced to regulate many cartels, because they made no attempt to meet their customers half way. The latter expected a general moratorium, which, however, was not granted in Germany. But the government had to carry out certain measures, espe-

cially in the textile cartels, to alleviate the obligations of the customers. Several voluntary agreements of this sort between the cartels and their customers came about as a result of government pressure.

The state was forced to interfere even further with the cartels, not to restrict, but to maintain existing cartels or even assist their formation. This was due to the realization that a dissolution of the cartels and the substitution of unregulated competition was not economically desirable and would make a careful utilization of material and working power impossible. The government created compulsory syndicates, especially in the mining industries, on the model of the potash syndicate, which had been reorganized under government pressure in 1910 to prevent a dissolution. Under a similar threat the Rhenish-Westphalian Coal Syndicate was renewed in the last hour before the expiration of the agreement. The government quite rightly feared that with the disintegration of this great organization it would no longer be possible to provide an adequate and regular supply for the consumers or to achieve a uniform regulation of export and home consumption. The mere fixing of maximum prices, which had failed in other fields, would certainly have been futile here.

In the case of many cartels, as for instance the lignite mines, the breweries, and important branches of the textile industry, the increases in price agreed upon were made subject to governmental sanction. Complete compulsory syndicates were created even in such industries as the dried-vegetable and yeast business, which had never before been organized into cartels; and this was justified by war conditions. In many cases, as in the leather and soap industries, it was not possible, on account of the large number of participants and the difficulty of procuring the raw materials, to form such syndi-

cates. In some branches of production, as in the cement industry, the development of new plants and the acquisition of existing ones were forbidden in order to prevent excessive capitalization, and to facilitate amalgamation similar to that of the cartel.

The manufacturers usually linked such forcible organizations into cartels, since the rationing and the fixing of quotas for production, for the supply of raw materials or for sales, which accompanied it, facilitated future monopolistic combinations. And herein appears the great danger of these measures, which the government tried to counteract by granting certain rights to the consumers and workers in the organizations and giving a hearing to their claims. And indeed, during the World War, it was necessary to undertake such far-reaching regulation of many industries as the compulsory cartels exhibit, partly in order to prevent uneconomic competition, and partly in order to induce the entrepreneurs to perform important services for the state. But in general such governmental organization of entire industries can scarcely be reconciled with present economic principles. If we disregard patents, which have a time limit, then every governmentally granted monopoly necessitates governmental regulation of prices. And that is a field with which the state — as people must have learned even during the war — should interfere only in cases of emergency. Experience has shown that the state always fixes prices in the interest of the weakest producers, in order to keep them alive. Often the state itself has been the owner of such firms, as in the case of coal, potash, and nitrogen. This leads to high profits for the more fortunate producers, who under free competition would have lowered prices. It is still a problem how to tax such differential gains.

The power of the state over industry, greatly in-

creased during the war, was extended even further when, after the imperial collapse, socialism came into power and saw a unique opportunity to realize its old ideals. There was infinite talk about the "rebuilding of German national economy" upon a socialistic basis. This was to serve as a model for the world, and countless plans for such a new order were proposed. Immediately after the revolution a socialization commission was created, and the literature on socialization and "Planwirtschaft" grew boundlessly. But soon it became apparent that the socialists, whose number had increased enormously, had no clear and practical plans for a reorganization of the present economic order. And when the peace terms of the Entente, with their political and economic crippling of Germany, were published, the foolish idealists and utopists soon came back to earth. Practically nothing remained of all the socialization plans. People still spoke of "socializing" the coal and potash mines and the electrical concerns, it is true, but all talk about other industries which had been declared "ripe for socialization" soon ceased. Even the regulation of these industrial branches, however, was really only a continuation of the previously existing compulsory syndicates. By a law of April 24, 1919, the compulsory sales cartel of the potash industry was reorganized. The final decision upon the fixing of prices rests in the hands of the Imperial Potash Commission (*Reichskalirat*), in which the entrepreneurs and the workers have only eight seats each, while the representatives of the consumers and the experts have fourteen. The *Reichswirtschaftsminister* can, however, lower the prices after hearing the management of the syndicate and the *Reichskalirat*. In the sales association, which does the practical work, the workers have one representative on the board of directors and three on the super-

visory council. An investigating commission determines the quotas; and another investigates wage conditions and tries to further the making of wage agreements.

The Rhenish-Westphalian Coal Syndicate was similarly reorganized under the *Kohlenwirtschaftsgesetz* of March 23, 1919. This is also a compulsory syndicate, to which belong, at present, ninety-three mine managements, among them eighteen which are combined with iron works. The syndicate makes proposals for the fixing of prices. This duty lies in the hands of the *Reichskohlenverband*, which includes, in eleven districts, all the German coal cartels. Over this is the *Reichskohlenrat*, which "controls the fuel business according to socio-economic principles under the supervision of the state"; and particularly "offers general advice for the exclusion of uneconomic competition and the protection of the consumer." The great committee of the *Reichskohlenrat*, which is composed of six mining representatives, six workmen, and nine representatives of the consumer and commercial interests, at present participates in price determination. The *Reichswirtschaftsminister* can object to and delay the execution of any decisions of the syndicate organs, if they endanger the interests of the community.

The attitude of the state toward the combinations in the iron industry was even more indulgent. The *Eisenwirtschaftsbund*, which in 1920 replaced the *Stahlwerksverband*, is far more independent than the coal and potash cartels. It is not a cartel itself but a common control organ of the several cartels, which is to assume the tasks which have been undertaken by the already-mentioned organizations in the potash and coal mining industries. The association sets the upper limits of prices and the conditions of sale. The *Reichswirtschaftsminister* appoints commissioners who may attend all

meetings of the association. He has a right of appeal in order to prevent the endangering of public interests. The complicated organization of the association brought it about that prices were actually determined in a smaller organization, the *Stahlbund*, in which dealers and consumers also participated. There has just been formed an association of crude-steel producers and there is in the making a general cartel for the different steel products, on the model of the old *Stahlwerksverband*.

In the electrical industry the law of December 31, 1919, attempts to go further, and especially to bring the delivery and distribution of current into the ownership or operation of the Reich, with active participation of the states in producing current. In this field the so-called mixed enterprises have been of great importance in Germany, capital being provided by public bodies and private individuals in the form of stock companies, which are directed either by public officials or private individuals. In every instance, however, the public bodies are granted greater influence and a participation in the profits.

Even tho the tendency toward socialization has generally declined since then, the socialists have in no wise abandoned their ideal and, especially in city management, people, under the influence of this party, are still too often inclined to take over all sorts of economic activities into community operation. They do not realize that the more city management is influenced by party politics and the more the enterprises are made the object of political aspirations and interests, the less they are suited for such organization. The disadvantages of democracy, which prevented an extensive development of public ownership in America, are very much felt in the present democratic Germany, with its politically immature population, which under other political con-

ditions had developed many public enterprises. All the dangers which result from public ownership (described in my book *Die Unternehmungsformen*, chapter IV) are now more apparent.

III. The Development of "Concerns" after the War

The tendency to group several enterprises and form large concerns had already made considerable progress during the war. German industry, which up to this time had been fairly democratic, as shown by the extent of the cartel development, became, like its American model, more and more a financial aristocracy, a few great financiers gaining increasing control. This tendency, however, did not issue from the banks, whose control has often been greatly exaggerated, but principally from commercial interests. The explanation is easy. A few able dealers had made enormous profits during the war, and now continued the tendency, to which we have already referred, to extend their control over large industrial enterprises. This was true not only in the iron industry, where a comparatively unknown firm, Otto Wolff & Co., suddenly acquired control over one of the largest "combined" concerns, the Phoenix Aktiengesellschaft, but also in the textile industry, where a relatively unimportant bag factory, Blumenstein Brothers, acquired a large number of great textile enterprises; and again in the sugar industry, where a sugar dealer of Magdeburg suddenly got control of eighty sugar refineries.

While these concerns confined themselves to a fairly specialized field, the founders of other concerns tried to annex many diverse establishments. A case in point is the Sichelkonzern, which, starting from the iron trade,

spread over into the chemical field. Thus above all others the Stinnes concern (i e., Stinnes's private interests) started in the shipping and coal trade and later combined the most diverse industrial branches, including automobile factories, paper mills, and newspaper publishing.

Such concerns, however, did not develop from commercial interests only. There were several isolated industrial enterprises, some quite unimportant, which through the initiative of their leaders now became the nucleus of large concerns. Thus the Charlottenhütte, a small Westphalian steel works, joined to itself some large undertakings in upper Silesia. Again, in the potash mines, the Wintershall Company became the center of a large concern which now includes 40 per cent of the total potash industry. Among the textile industries we may mention the Hammersen concern and the amalgamation of most of the jute mills. There is, further, the warehouse of Rudolf Karstadt Inc., which annexed very diversified branches of production. The development of concerns is noticeable also in the insurance business.

In every case individuals undertook the leadership in the formation of the concerns. Those who could read the signs of the times, and could predict that the continuation of the war in other ways by France, and the political rupture in Germany, would lead to an endless devaluation of the currency, and also knew how to get credit for themselves, had no difficulty in forming large concerns. Thus Hugo Stinnes became the all-powerful master of countless industrial enterprises. He was also successful in forming, without any great financial outlay, the Siemens-Rhein-Elbe-Schuckert Union during the socialization period. This is a close *Interessengemeinschaft* of three of the greatest coal and iron works

with the next to the largest concern in the most important German manufacturing industry, the electrotechnical industry, which was grouped around the Siemens and Halske Company and the Siemens-Schuckert works. This combination was originally designed to make socialization difficult, but at the same time was supposed to reorganize the two great mining enterprises which, through the loss of their possessions in Lorraine and Luxemburg, were deprived of almost all their steel plants. This large *Interessengemeinschaft*, however, was only organized by Stinnes, and in contrast with his private concern was not financially controlled by him.

The form of organization of these new concerns was in most cases "security-capitalistic," based on the acquisition of shares, business interest, and control. The reorganization of private enterprises into stock companies became very extensive. Many evils which had formerly been unknown now appeared. Large blocks of shares, often the majority of the number issued, passed from one hand to the other. The management tried to protect themselves against such buying by issuing special shares with the privilege of voting or sharing in the management (*Stimmrechts-* or *Verwaltungsaktien*). But even these were subject to abuse. It is not necessary, however, to describe such manipulation to American readers. The frequent and large increases of capitalization are the only unique feature. These were justified by the increasing depreciation of the currency. In most cases they brought little additional capital, but they were often used to extend business and acquire other enterprises.

In the founding of these concerns a monopolistic tendency, that is toward the formation of real trusts, was seldom found. Only one instance, closely following the American model, is to be noted. This was among the

builders of flour mills. Before the war, an expert and partner in a small building firm had conceived the plan of amalgamating three larger enterprises and another one with his firm. Backed by bank credit, after the war, he was successful in obtaining the majority of shares of the other firms; and in 1921 there was organized the *Miag Mühlenbauindustrie A. G*, which now, with a capital of 5.5 million marks, controls the majority of the shares of all five firms, whose nominal capital amounts to 15 million marks. This holding company is designed to act at the same time as the financing company for this concern. It is noticeable, moreover, that in the mill-building industry there exist side by side trusts, closely organized cartels, *Interessengemeinschaften*, loosely organized price cartels, and trade associations; the first three between the works of the concern, and the last two between them and about thirty small mill-building firms, which are unimportant in the export trade.

It has often been maintained that vertical combination (the grouping of enterprises in various stages of production) is characteristic of Germany, while in America and England the horizontal combination of the same kind of enterprises is more common. I believe this to be incorrect, certainly in the United States, where it is well known that even outside of the iron industry great combinations, grouping many stages of production, are quite common. Such combinations are also found in England which are just as important as the German vertical concerns. I refer only to Lever Brothers, Vicker's Ltd., and J. and P. Coats. It is true, however, that after the war many enterprises allied themselves with factories engaged in subsequent processes, in order to have steady customers. Under certain conditions this is as dangerous as the German pre-war practice, where breweries acquired numerous saloons. Such a combina-

tion may lead to unhealthy conditions, if the combined enterprises keep up the prices of raw materials through cartels, and thus make it impossible for uncombined manufacturers to compete.

One may say, in general, that the vertical as well as the horizontal combination makes for economic advantage only if expenses of production and marketing costs can be kept down in this way. An alliance of firms supplying raw materials and manufacturers is all the less justifiable if these manufacturers cannot themselves finish the product of the first firms, leaving the latter, therefore, dependent on selling raw material. On the other hand, the penetration of firms producing raw materials into the finishing industries may often bring about a saving, since profits are expected only in the final stage of production; but the previously uncombined manufacturers do not give way easily, and thus there often results overcapitalization and overproduction. I have especially emphasized in my theory of crises (*Grundsätze der Volkswirtschaftslehre*, vol. ii, pt. x) this cause of crises, that is, the divergence of private expectation of profits and the economically expedient extent of capital formation.

When, however, a capitalistic combination of several enterprises seems expedient, a complete fusion is, in most cases, most serviceable and makes possible the greatest amount of savings. This cannot be brought about, as a rule, by a system of mere participation and complicated *Interessengemeinschaften*. Up to now, however, high taxation has made such fusion difficult in Germany. This is all the more objectionable since the process of fusion, even when recognized as the most expedient form of combination, has many other inherent difficulties, especially of a personal nature. The owners, directors, and supervisory councillors of the merging

firms are not willing to be brushed aside. Such circumstances have so far made the closer combination of the chemical industry, which had been combined into an *Interessengemeinschaft*, impossible. This merger, under the leadership of the greatest and oldest firm, the Baden Anilin- und Sodawerke, has been under discussion for a long time.

Production can as a rule best be rationalized through complete mergers, that is, the development of a unified productive enterprise. Even before the war there were many demands for a greater rationalization of the scattered German industries, and in many industries a beginning was made according to American models toward restriction of the established types and the unification of norms. This problem was even more emphasized after the World War in order to enable an effective competition in the world market, and to help pay for the necessary imports. But nothing much has been accomplished. Many manufacturers of automobiles and agricultural implements have made agreements according to which each firm limits itself to the production of certain types, as had already been done before the war in the cartel of the fire-extinguisher manufacturers. The requisites for such rationalization are often discussed — Fordism plays a much greater rôle in Germany than in America — but the actual achievements have been very moderate, despite all the formation of concerns. In most branches of German industry the private independent enterprise with long-established connections has still a much greater importance than in the United States, and the greatest obstacle to rationalization lies in the lack of capital, which prevents the necessary technical changes.

IV. The Cartel Development since the World War

In the first years after the war the public stood so much under the influence of concern formation and the attempt to rebuild German economic life, that even scientific economists often believed that the cartels had passed the zenith of their importance and were being steadily forced into the background by the concerns. In his *Kräfte, Ziele und Gestaltungen in der Deutschen Industriewirtschaft* (Jena, 1921) v. Beckerath concluded: "Cartels were formerly the preferred means of adapting production to sale. To-day this form of organization is declining and giving way to reorganizations in the form of large economically unified single enterprises and concerns." I attacked this conclusion in my *Cartels and Trusts* (5th and 6th ed.) and pointed out that the adaptation of production to sale can take place only through monopolistic organizations. I also expressed the view that the flowering period of the concerns was only temporary, and related to inflation and the consequent extremely speculative character of industry. For the reorganization of German economic life such very complicated conglomerations would have very little weight. Subsequent development has shown this conception to be correct. Numerous concerns, especially the Stinnes private concern, have disbanded. The same is true of many other smaller concerns. And the cartel movement, on the contrary, has taken an extraordinary upward swing. Disregarding the numerous local associations in small business and trade, there were in large-scale business and trade about 3100 cartels in 1924.

It is obvious that the cartels must lose in importance during the period of inflation. As long as German industry was active as a consequence of inflation and the

seeming business revival, the cartels were superfluous. During the height of inflation, when prices often rose 50 per cent over night, cartels were naturally of little use. When, however, the great crisis, which is still being felt, began after the financial stabilization, business men realized that the financial combination of enterprises was not sufficient to regulate production and sale, and that monopolistic agreements for the entire industry were needed once more. As long as the present difficult economic situation continues — and it will last until foreign countries realize that Germany cannot pay huge reparations without first repairing her industry — the cartels will be of great importance. In such times they justify themselves as "children of necessity" and are irreplaceable. This does not mean that the unification of enterprises in the interest of industrial rationalization, best of all in the form of fusions, should cease. The two principles of organization, monopolistic combinations and the tendency to "bigger business," to financial, capitalistic combination of enterprises, do not exclude one another, but rather are complementary.

It is true, of course, that the cartels easily cause higher prices, and this all the more since local small businesses and retail trades have been formed into cartels, which are less under public control than the large industrial branches and their organizations. The increasing cost of living in Germany may be explained by these conditions, as well as by the extraordinarily high taxes and social burdens which were necessitated by the upsetting of the whole economic and political situation. We cannot consider in this place the new customs regulations, which are, of course, primarily designed as a means of bargaining in negotiations with countries having high protective tariffs, such as the United States; altho it is well known that such customs duties are not

without great influence upon the development and general effectiveness of the cartels.

We must describe here the condition of two of the most important German industries and their cartels: the Rhenish-Westphalian Coal Syndicate and the main cartel of the German iron industry. They are characteristic of the way in which German industry is trying to overcome by organization the difficulties occasioned by the peace terms. This cannot be done, of course, by means of cartels and other organizations alone, since the necessary technical reorganization of the enterprises necessitates much more capital than Germany can at present command.

With the entry of the French into the Ruhr early in 1923, the coal syndicate transferred its seat to Hamburg; in the beginning of 1924 it returned to Essen. The continuation of this syndicate, late in 1923, was achieved only after strong governmental pressure. It received the name of Distribution and Sales Association of Ruhr Coal, Inc. (abbreviated as Ruhr Coal Co.). Three mines in French or Belgian possession were not included. In September, 1924, only 90 per cent of the mines were willing to participate in a continuation of the syndicate for five years. The *Reichswirtschaftsminister* then concluded to utilize the powers of the *Kohlenwirtschaftsgesetz* and force the members to join the syndicate. For this reason all the mines of this district are now included. But inside this syndicate there are many differences, especially the well-known one between ordinary mines and furnace mines, i. e., mines connected with iron foundries. The furnace mine has a very favored position (1) because for what it uses itself it does not need to obey syndicate restrictions of production, and (2) since it can profit by the difference between the cost prices and the much higher syndicate prices. The ordinary mines had been

trying for a long time to narrow the concept "own use," but this concept retains its validity when the foundry in question has an active 51-per-cent participation in the mine. The advantages of "home" consumption have for a long time strengthened the amalgamation movement, and for this reason the furnace mines now make up the majority of the syndicate. Since the syndicate works at present with a restriction of 40 per cent of participation in sales for coal and 55 per cent for coke, this privilege of "home" consumption has a special advantage, and the furnace mines finally had to agree to limit their consumption, especially since iron production had to be heavily restricted.

A further great difference of interests in the coal syndicate relates to the selling organizations. While the syndicate and its own trade organizations control the sale of coal in uncontested regions, the mines have developed their own trade organizations in the contested regions — along the North Sea and the Baltic, where the competition is mostly English, and in all foreign countries. Their relation to the syndicate has for a long time been the occasion of much strife. At any rate, coal mining, including other production districts and the lignite mines which are so important for Germany, is to-day more under the control of the government than used to be the case, and the present regulation, tho very complicated, is in general satisfactory.

The Rhenish-Westphalian coal mines are at present in a very unsatisfactory position, and their shares have declined unbelievably. This is due principally to the complete disruption of the wholesale iron industry, which has been brought about through the loss of their works in Lorraine and Luxemburg. The transfer of most of her Saar works to France cost Germany 42 per cent of her former productive capacity in pig iron and 35 per

cent in crude steel. Before the war Germany was the second greatest iron and steel producer of the world (1913, pig iron 19.3 million tons and crude steel 18.95 million tons). While thus in the French works a tremendous overproduction was inevitable as soon as the duty-free import to Germany, granted for five years, ceased, the German coke production had to restrict itself correspondingly. This, however, could be accomplished only to a limited extent for technical reasons, since the furnace gases had to be used to furnish engine power. And since, on the other hand, the enormous iron consumption of Germany had to be taken into account, the German steel works undertook important enlargements, so that their productive capacity almost reached its former level.

The *Stahlwerksverband*, the general cartel of the iron industry, had been dissolved in May, 1920, and had been replaced voluntarily by a loosely organized union, the *Stahlbund*. At the end of 1924, however, there was formed another stable quota-cartel, the *Rohstahlgemeinschaft*. It had to undertake a 25-per-cent reduction of production, since French competition (France had increased its export six times over the pre-war figure) made foreign trade very difficult, and German consumption also had declined.

Under these circumstances the greatest importance must be attached to the trade conferences with France which had been going on for a long time. The German government thought it most expedient, in view of the political differences, to permit the iron manufacturers of both countries to come to an agreement among themselves first. At the conferences in Luxemburg the *Rohstahlgemeinschaft* promised the French producers to take over 1.75 million tons annually, this amount to be decreased with each restrictive regulation of the German

cartel. This quantity is many times the amount that the respective regions previously sent into Germany. The pig-iron producers agreed further to bear half of the duties for the orders from Lorraine-Luxemburg, which would amount to about 7 million marks if the above quantum was taken. This agreement, however, has not been definitely concluded.

The German raw-material and manufacturing associations of the iron industry have agreed in part on the important question of how the world market price for raw material and half-finished products shall be guaranteed to the manufacturers for the export of finished goods. A commission calculates the difference between the domestic and the world market price. Then according to the specifications on the exported quantity of finished goods the quantity of iron contained is determined and the manufacturer receives a redemption coupon, redeemable when ordering new supplies of iron, for the difference between the world market and the domestic price. This agreement has so far been concluded between the *Rohstahlgemeinschaft* and the Association of German Machine Manufacturers, one of the largest manufacturing industries. Other associations will follow their example.

Besides the *Rohstahlgemeinschaft* several associations, including important branches of the iron industry, are in process of formation. A raw-tin association has already been organized. The organization of industries producing pipes, rolled wire and drawn wire is still being discussed with foreign producers. The extraordinarily unfavorable position of the German iron industry will result in combinations even here, despite all difficulties.

These examples make clear that many of the most important German industries are still in the reorganization period, and that one cannot speak for some time yet

about stability and consolidation. The cartels have very important functions under these circumstances, but it is clear that they cannot cure the ills which unwise politics have brought upon economic life. And we have not even mentioned so far the forced exports which the reparation demands according to the Dawes plan will bring about in the near future. That it is impossible to carry this plan out seems to have been realized by clear-sighted economists even more in America than in Germany, but it would lead us too far afield to discuss it here.

One thing is certain: all active and passive organization capacity will not help the German people without sufficient room for expansion, and there can be no question of the industrial prosperity which Secretary of State Hughes promised upon the acceptance of the Dawes plan. It is also certain that all other states will have to suffer from the impoverishing of Germany by the peace terms.

V. State Problems in Regard to the Cartels and Concerns

The demands for legislative regulation of the cartels, which had subsided somewhat during the revolution and the socialization plans that followed, came to the front again with increasing insistence after the passing of this movement. In July, 1922, the Imperial Economic Ministry formed an advisory council composed of members of the Reichstag, the Reichsrat, and the Imperial Economic Council. And on March 14, 1923, the Reichstag voted by an overwhelming majority to request the government to submit a draft for a law regulating cartels as soon as possible. It was recommended that this law should embody (1) the creation of a cartel register,

(2) recommendations for the creation of an advisory council of the consumers for every cartel, and (3) a governmental right of appeal, upon the recommendation of the advisory cartel council, against decisions of the cartel.

Thereupon the government issued on November 2, 1923, the "Regulation against the Abuse of Business Organizations." The first two recommendations of the Reichstag were ignored. The introduction of a cartel register would certainly have been advisable. But the oft-demanded bureau of cartels or industries, modeled on the American Federal Trade Commission, would have proved too expensive under the present circumstances. The Regulation created a special Cartel Court, as a branch of the Imperial Industrial Court, which can be appealed to by both the members of the cartels and the governments (cf. § 11 ff.) The most important provisions are the following:

§ 1. "Agreements and decisions which contain stipulations regarding the management of production or of sales, the interpretation of business terms, the method of quoting prices or the demanding of prices (syndicates, cartels, conventions, and similar arrangements) must be in written form." Agreements based upon word of honor, etc., are null and void.

Most important is § 4: "If an agreement or a decision such as designated in § 1 or the method of its execution should endanger the welfare of the people the *Reichswirtschaftsminister* can (1) recommend to the Cartel Court that the agreement or decision shall be declared null and void, or that the method of carrying such decision out shall be prohibited (§ 7); or (2) order that every participant in this agreement or decision may at any time without notice repudiate this agreement or withdraw from the decision or (3) demand that a copy

of all agreements be submitted. The common weal is deemed in danger especially when production or sale is restricted in a manner that cannot be economically justified, or when prices are raised and maintained, or when premiums for risk are added to the stable prices, or when economic freedom is unfairly endangered by hindrances to buying or selling, or by the fixing of discriminatory prices or conditions."

While these provisions are only emergency measures, in so far as the *Reichswirtschaftsminister* may recommend under certain circumstances that a cartel be declared invalid, the eighth section goes much farther. It runs: "Agreements or decisions of the kind listed under § 1 can be repudiated by any participant without notice, if an important reason necessitates such action. It is always to be considered an important reason if the economic freedom of mobility of the repudiating party is unfairly restricted, especially in production, in sale, or in the determination of prices."

§ 9. "Without permission from the Chairman of the Cartel Court securities cannot be converted and embargoes and other penalties cannot be ordered on the basis of agreements or decisions as listed under § 1. All participants can appeal against such a decision in the Cartel Court within one week after it has been made."

The quite unusual significance of this law lies thus far in §§ 8 and 9, in the regulation of specific cartel practices such as the so-called exclusion agreements, undertakings to deal exclusively with members of the cartel, boycotts and delivery embargoes for outside enterprises, etc. Most of the nearly 200 decisions of the Cartel Court refer to these paragraphs. Only in one case has a cartel been dissolved on the basis of § 4, that is, because it endangered the common weal. This was the cartel of the asphalt factories, which demanded unreasonably

high prices in a contract with the city of Berlin. All other decisions of the court have little to do with the economic influence of the cartel, i. e., the influence on the determination of prices, on the buyers and final consumers; but are rather concerned with the influence of the cartel upon the fortunes of individual enterprises, the "discriminations" well known in American experience, such as price supplements and, under certain conditions, a complete refusal to sell to would-be customers. There is not space here to go into further detail regarding these cartel measures and decisions of the Cartel Court, which lie more in the region of the private-economic and the legal. It must suffice here to say that the individual cases which have been decided by the Cartel Court thus far were in most instances so diverse that the court had to base its ruling in each case upon considerations of fairness. Only gradually will there develop a general body of precedents *rerum similiter judicatarum*.

For mining concerns under special control and for the cartels of large industries which are already largely under public supervision, the safeguarding of the buyer and the common weal seems to be adequately secured by the cartel legislation and the Cartel Court. This is less the case with the numerous local cartels in small business and retail trade, which in the form of loose price-agreements often subject the final consumer to a relatively heavy burden. An appeal to the Cartel Court by the consumers can never be expected under these circumstances, and governmental appeal only in rare cases. And only cases involving heavy damages will come before the regular courts. The consumers' union movement has here a great function, which unfortunately is hindered by public indolence and the difficulty of finding satisfactory leaders.

Very important problems of government control, however, still exist in the field of concern formation, and more generally in that of corporation law. The provisions of German law in regard to the forming of corporations, accounting, liability for prospectuses, etc., were more strict than in any other country. But they have not been able to prevent many abuses in stock companies, which increased considerably during the period of inflation. For Germans were accustomed to give greater protection to stockholders, from arbitrary manipulation by the leaders and from illegal transactions by financiers, than was the case in America. During the period of inflation, however, such safeguards completely failed because of the fictitious character of all balance sheets. And the management shares and voting stock which had been issued as safeguards against the so-called "foreign control" were much abused. The financial statements were wholly obscure, especially as regards participation in control. In the so-called "free trading" on the exchanges there was dealing in the stocks of many small enterprises and doubtful new flotations which would never have been permitted to enter into official trading. Even after the stabilization of the currency, many firms insisted on offering very high compensation for managers, despite the lack of profits, in most cases stable rates instead of a percentage of the net profits. The concentration of positions as managers in the hands of individuals reached a very high degree.

Social democracy in the one-sided pursuit of its goal, the government control of industry, has hitherto greatly neglected the more immediate problem of abolishing the abuses connected with joint-stock companies. Noted men of science, politicians, and economic leaders have now formed a "Stock-Law League," which seeks to inaugurate a reform of the laws regarding stock com-

panies. This is all the more necessary at present, since the reduction of capitalization in the case of most companies has resulted in shares of very small par value (as low as 20 marks, while formerly 1000-mark shares were customary). Furthermore, during the flight into "real values," in the period of inflation, many very small capitalists became stockholders in companies, and many impoverished rentiers still retained small amounts of stock. The abuses in connection with joint-stock companies are not nearly so great in Germany as was formerly the case in America under the manipulation of individual founders and financiers; but the German people are also more accustomed to government aid, and since the ownership of shares has spread into the circles of small capitalists, tho not, as in America, among the workers, this field also offers many important social problems.

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CHAPTERS ON MACHINERY AND LABOR

III. Machinery and the Displacement of Skill

SUMMARY

Definition of displacement of skill, 112. — The factors determining the amount of displacement, 112. — Rapidity of introduction of the machine, 113. — The mobility of labor within the trade, 117. — Effect of the machine in increasing demand for the product, 121. — The labor-displacing power of the machine, 126. — Extent to which the skill of the handworker is useful in the machine process, 127. — Variety of combination of factors, 132.

That machines do not, even at their first introduction, *invariably* throw human labor out of employment, must be admitted; and it has been maintained, by persons very competent to form an opinion on the subject, that they never produce that effect. The solution of this question depends on facts, which, unfortunately, have not yet been collected; and the circumstance of our not possessing the data necessary for the full examination of so important a subject, supplies an additional reason for impressing upon the minds of all who are interested in such inquiries the importance of procuring accurate registries, at various times, of the number of persons employed in particular branches of manufacture, of the number of machines used by them, and of the wages they receive.[1]

Since the beginning of the nineteenth century, the effects of machinery on labor have engaged the attention of many economists. The resulting discussion has centered chiefly around two questions: the effect of machinery on the general rate of wages, and the part played by machinery as a cause of unemployment. The present chapter deals with a third effect of machinery, — the displacement of skill.

1. Charles Babbage, Economy of Machinery and Manufactures, Fourth Edition, 1835, pp. 336–337.

By displacement of skill, in the sense in which the term is here used, is meant the loss of the opportunity to sell acquired skill at the rate of remuneration which would have been received if the machine had not been introduced. Displacement, therefore, does not necessarily mean loss of employment. If the employment after the introduction of the machine, and as a consequence thereof, is at a lower rate of remuneration, displacement of skill has occurred. In a skilled trade, there is at any time an amount of skill which may be valued at a certain sum. This sum is the discounted value of all the premiums above the price of unskilled labor which the skilled workmen would have collected if the machine had not been introduced. If any part of this expectation is lost through the introduction of machinery, a displacement of skill has occurred

The factors determining the extent of the displacement of skill consequent upon the introduction of machinery may be enumerated as follows: (1) the rapidity of introduction of the machine, (2) the mobility of labor within the skilled trade affected, (3) the effect of the machine in reducing the price of the manufactured article and thus increasing demand, (4) the labor-displacing power of the machine, (5) the extent to which the skill of the handworker is useful in the machine process. Altho economic discussion has not been directed in detail to the particular question here considered, many economic writers, in the course of their treatment of the effects of machinery on general wages or on unemployment, have expressed opinions as to the operation of some of these factors. These opinions will be examined under their respective heads. The facts used have been drawn chiefly from studies of particular cases of the introduction of machinery in skilled trades, published at

various times by the writer.[2] In the present chapter the assumption has been made throughout that economic forces are working on a purely competitive basis. Accordingly, no account has been taken of any form of intervention. The chief modifying force in the working of these factors in the past has been the trade unions of the handworkers. In a final chapter the possibilities and achievements of trade-union intervention will be considered.

I

The assumption that the rate of introduction of machinery was likely to be slow has had a long history in economic writing. J. B. Say laid it down as one of the characteristics of the introduction of machinery, ameliorative in its effect, that "new machines are slowly constructed and still more slowly brought into use."[3] By far the most elaborate development of this doctrine was that of Professor J. S. Nicholson, in his book "The Effects of Machinery on Wages," first published in 1878. Professor Nicholson's "Law of Continuity" is divided into two parts. The first asserts that "a radical change made in the methods of invention will be *gradually and continuously adopted.*"[4] More concretely, he says:

> Suppose that a radical change is introduced by some ingenious producer into a certain manufacture which will lead to the employment of less labor. That this process will be adopted in process of time by all other manufacturers is evident, but I maintain that in comparison with the mobility of labor the process will be slow.

2. "The Introduction of the Linotype," Yale Review, November, 1904, pp. 251–273; "The Stonecutters' Union and the Stone-Planer," Journal of Political Economy, May, 1916, pp. 417–444; "The Introduction of Semi-Automatic Bottle Machinery," Quarterly Journal of Economics, May, 1925, pp. 337–356; "The Introduction of Automatic Bottle Machines," Quarterly Journal of Economics, August, 1925, pp. 544–575.

3. J. B. Say, A Treatise on Political Economy, New American Edition, Philadelphia, 1848, p. 87.

4. J. S. Nicholson, The Effects of Machinery on Wages, new and revised edition, 1892, p. 33. The italics are Professor Nicholson's.

The second part of the "Law of Continuity" sets forth that "these radical changes tend to give place to advances by small *increases of invention*." To the same effect is Professor S. J. Chapman's assertion: "New inventions are slowly adopted as a rule, and, at first, owing to their imperfections, the saving in labor effected by them is usually small." [5]

In their discussions, Professor Chapman and Professor Nicholson were concerned chiefly with the effect of machinery on unemployment, but the "Law of Continuity" has a direct relation to displacement of skill. Professor Nicholson recognizes this relationship in the following passage:

> This destruction of the laborer's only capital is one of the most pernicious effects of machinery and when it happens there is and can be no remedy. Still, if the changes are gradual the evil consequences are not so great.[6]

Before considering the possible effects of a slow rate of introduction in conserving skill, it will be convenient to examine the various causes of slowness, since the possibilities of diminishing displacement turn largely upon the character of the retardation.

1. The retarding force on which Professor Nicholson lays greatest emphasis is the inertia of the manufacturer.

> The more enterprising the capitalist [he says], the sooner he will make any change, but the change will not in reference to labor be sudden. . . . The change will at first be adopted by some enterprising capitalist in the centre of a highly competitive region and will gradually extend to the manufactories of less competent masters in more remote districts.[7]

An examination of the history of the introduction of machinery in the glass bottle, printing and stonecutting trades does not confirm the opinion that the retardation

5. S. J. Chapman, Outlines of Political Economy, 1911, p. 84.
6. Nicholson, op. cit., p. 44.
7. Ibid., pp. 36–37.

due to inertia is sufficiently long to be important. On the contrary, it appears that where a machine is sold or leased to any manufacturer willing to pay the price, it is introduced with great rapidity. The stone-planer was fully introduced in about seven years; the period of introduction of the linotype did not cover more than ten years; the number of narrow-mouth semi-automatic bottle machines did not increase much after six years; the "flow and feed" devices for making bottles were fully introduced in five years.[8] In all these cases there was some increase in the number of machines after the period of introduction, but it was due to expansion in production and not to the displacement of the hand process.

2. The second cause of slowness of introduction, noted both by Professor Nicholson and by Professor Chapman, is the increasing capacity of the machines, partly because of improvements in the construction of the machine and partly because of the greater speed of the operatives. In the machines studied, this factor was of great importance. The first operators of the linotype produced much less than the present operators. The stone-planer was improved in speed by various modifications of its form and a great increase secured in output per man employed. The semi-automatic bottle machine gained in efficiency over a considerable period of time. The capacity of the Owens bottle machine more than trebled in ten years. Less important yet notable improvements have been made in "flow and feed" devices for the automatic manufacture of glass bottles.[9]

8. "The Stonecutters' Union and the Stone-Planer," pp. 417–418; "The Introduction of the Linotype," p. 252; "The Introduction of Semi-Automatic Bottle Machinery," p. 341; "The Introduction of Automatic Bottle Machines," p. 569.

9. "The Introduction of the Linotype," p. 254; "The Stonecutters' Union and the Stone-Planer," p. 419; "The Introduction of Automatic Bottle Machines," pp. 547–550.

3. A third cause of slowness in the introduction of machines is the necessity of adapting the machine to the various products made by the skilled handworker. It must be an extremely rare case in which machinery has superseded an entire skilled trade. The scope of the machine, even when it reaches its fullest development, is almost always narrower than the entire handicraft. The extension of the machine to its final limit of performance usually requires time. The early stone-planers covered much less of the stonecutters' original trade than the more recent forms. The present type-setting and type-casting machines have a wider range than the earlier forms. Machinery for making glass bottles originally made only wide-mouth heavy ware. The scope of the machines was gradually extended to other forms of ware, but the period of extension was a long one, reaching from 1895 to 1917.[1]

4. A final cause of retardation, in the introduction of some machines, is the restriction placed on the use of the machine by the patentee in order to profit more largely by his invention. From this point of view, machines may be divided broadly into two classes, accordingly as the patentee, on the one hand, sells or leases the machine to any one who will pay the price or, on the other hand, retains entirely the use of the machine or sells exclusive rights to particular manufacturers. In the latter case, the manufacturers using the machine may prefer to make larger profits on part of the total production, rather than to lower prices sufficiently to drive out competitors using inferior forms of production. This form of retardation can never outlast the patent rights, and may be terminated sooner by the invention of another machine, or a change of policy on the part of the manu-

1. "The Stonecutters' Union and the Stone-Planer," p. 419; "The Introduction of Automatic Bottle Machines," pp. 551–552.

facturer. The policy of selling rights to manufacture particular kinds of bottles to selected manufacturers was pursued by the Owens Bottle Company. The policy of retaining the use of its own machines has been followed by the American Window Glass Company.[2] In both cases, a very considerable retardation in the introduction of the machines resulted.

From the foregoing, it may be concluded that the introduction of machinery is rarely, if ever, catastrophic, and that a considerable period is likely to elapse before the machine has reached its limits as a potential force in displacing skill. Does the existence of this period lessen the total amount of displacement?

II

The extent to which slowness of introduction salvages skill depends on the degree to which the inflow of labor into the hand trade is stopped, and the existing skill utilized to fill available positions.[3] Whether inflow is stopped or checked depends in turn chiefly on whether the skilled labor in the trade is sufficiently mobile. In any particular case, there may be other factors in checking inflow, such as trade-union action, or there may be factors promoting inflow, such as the desire to profit by

2. "Introduction of Automatic Bottle Machines," pp. 549–550; The Glass Industry as affected by the War, Tariff Information Series, No. 5, p. 139.

3. Professor Chapman in dealing with the problem of unemployment as an effect of machinery, where the same reasoning is pertinent, appears to assume that inflow would cease automatically. He says, "Moreover it must be remembered that a re-direction of the labor of the rising generation alone can bring about great changes rapidly, especially in a growing society. An unrecruited industry shrinks at an increasing pace and in a decade its shrinkage must be considerable. The amount of labor displacement, if any, caused by new machinery depends upon the rate at which new machinery is introduced." Chapman, Outlines of Political Economy, p. 84.

apprentices. Generally speaking, however, the effective check to inflow is the mobility of the existing skill in the trade.

The immobility of skilled labor takes various forms. Almost every trade is split up into specialized sections, either coöperant or independent, passage from one to another of which may be difficult. Workmen may prefer to forego the exercise of their skilled trades rather than to incur the disadvantages involved in removal to other localities. The older workmen find great difficulty in learning the operation of the new machines even when the skill of the handworker is wanted for the operation of the machines. Not infrequently two of these three primary obstacles to mobility are combined against the movement of a single workman.

If machines were introduced piece-meal, that is, if an employer installed one machine and then later another, in the meantime having identical work done by hand, the stopping of inflow into the trade would naturally result from the introduction of machines, since an employer ordinarily would not train new workmen when there was already a sufficient supply. But the introduction of machinery does not proceed in this manner. Usually machinery is introduced completely in a single plant, that is, all work of the same kind is done by machine and not part by machine and part by hand. There is bound to be a surplus of skilled workmen at that point, to be absorbed in some other factory in the same kind of skilled work, or in the same factory in some coöperant form of handwork or in working the machine. If they are not thus employed, skill is displaced.

It is entirely conceivable, therefore, that slowness of introduction may have no effect in lessening the displacement of skilled labor. Unless the men thrown out by the machine secure employment in one of the three ways

enumerated, slowness of introduction would not affect the total amount of displacement. The persons affected, of course, would not be identical with those who would have been displaced by a more rapid introduction. Many of those in the trade at the time of the first introduction of machinery would be able to exercise their skill for a longer period of time, but the persons entering the trade thereafter would suffer displacement, as a group, in an amount equal to that salvaged by their predecessors.

The influence of mobility in lessening the amount of displacement is not limited by slowness of introduction. Where the skill of the handworker is useful in the machine process, either as a coöperant handworker or as a machine operator, the ability of workers already in the trade to shift to these positions is a factor in the avoidance of displacement.[4]

Illustrations of the effect of immobility on the amount of displacement may be drawn from the history of the introduction of machinery in various trades. The introduction of the linotype was accompanied by conditions highly favorable to the avoidance of displacement of skill. The increase in the demand for printed matter after a short time was great; skilled printers were used as operators for the machines. Skilled men were used as coöperant workers. The total number of skilled workers in the trade steadily increased. Even under these conditions, there was a considerable amount of displacement. The older hand compositors were generally not able to secure employment as machine operators, and there was a surplus of the particular specialized form of skill which they possessed. The younger men were drawn into machine work from other branches in the trade. The places thus vacated were filled to some ex-

4. See below, pp. 128, 130.

tent by men who had been displaced by the machine, but chiefly by an increased inflow into the trade.[5]

The introduction of the semi-automatic bottle machine presents a similar case. The machine was capable of making only wide-mouth bottles; the remainder of the trade was entirely unaffected. During the whole period of its introduction there was a constant and large increase in the total number of glass-bottle blowers, but the displacement of skill was considerable. Many of the men who formerly had made wide-mouth bottles were not able to make satisfactorily other forms of bottles, or were unwilling to remove to the places where such bottles were made. The inflow into the other branches of the trade was sufficiently enlarged to furnish the needed workers.[6]

The introduction of the Owens bottle machine was characterized by displacement of the same kind. As the machine successively invaded various parts of the trade, the transfer of the workers supplanted by the machine to the unaffected branches was very imperfectly accomplished. From 1905 to 1917, the total number of skilled blowers and machine operators fell from 9000 to 4000, yet in most of these years the influx of apprentices was considerable.[7] In the case of the stone-planer the displacement of skill was increased by a change in the location of the industry, as the hand work supplementary to the machine, to a very considerable extent, was transferred to the quarries. The migration of stonecutters to these centers, while large, was insufficient to fill the need, and an inflow into the trade resulted at the very time when stonecutters were being displaced at other points.[8]

5. "The Introduction of the Linotype," p. 263.
6. "The Introduction of Semi-Automatic Bottle Machinery," p. 343.
7. "The Introduction of Automatic Bottle Machines," pp. 558, 566.
8. "The Stonecutters' Union and the Stone-Planer," pp. 438–439.

III

Very early in the discussion of the effect of machinery on the general rate of wages, the apologists of the machine began to argue that the machine by cheapening the price of goods caused such a large increase in consumption as to increase rather than to lessen the demand for labor. J. B. Say appears to have originated this argument. He said:

> The multiplication of a product commonly reduces its price, that reduction extends its consumption; and so its production, tho become more rapid, nevertheless gives employment to more hands than before.[9]

Say was careful to distinguish this as an ultimate and not an immediate effect.

The doctrine was stated very broadly by most of the English economists of this period. Even Malthus, who was careful to assert the possibility of exceptions, said:

> When a machine is invented, which, by saving labor will bring goods into the market at a much cheaper rate than before, the most usual effect is such an extension of the demand for the commodity, by its being brought within the power of a much greater number of purchasers, that the value of the whole mass of goods made by the new machinery greatly exceeds their former value; and, notwithstanding the saving of labor, more hands, instead of fewer, are required in the manufacture.[1]

McCulloch, while denying that the effect of machinery in increasing the production of goods had anything to do with the advantages of machinery, did not hesitate to assert that

> any considerable reduction in the price of a commodity in general use, has uniformly almost been found to extend the demand for it in a much greater proportion.[2]

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9. Say, A Treatise on Political Economy, New American Edition, 1848, p. 88.

1. T. R. Malthus, Principles of Political Economy, Second Edition, 1836, p. 352.

2. J. R. McCulloch, Principles of Political Economy, Second Edition, 1830, p. 189.

Babbage appears to have been the first English writer of importance to express a doubt as to the "usualness" of an increase in employment consequent upon the introduction of machinery. In a cautious and hesitating chapter, he asserted that "the solution of this question depends on facts which unfortunately have not been collected." He submitted data collected by himself from various sources as to the actual increase in employment in cotton manufacture, but reached no definite conclusion.[3] Mill was equally cautious:

> I cannot assent to the argument relied on by most of those who contend that machinery can never be injurious to the laboring class, namely, that by cheapening production it creates such an increased demand for the commodity as enables, ere long, a greater number of persons than ever to find employment in producing it. The fact tho too broadly stated is, no doubt, often true.[4]

In more recent times economic writers have offered various opinions. Mr. John A. Hobson, who has discussed the question exhaustively, reaches this conclusion:

> The assumption, however, that machinery must increase the aggregate employment, either in this particular trade itself, or in that trade *plus* the machine making and subsidiary trades, is, of course, unwarranted. All depends upon the effect of the machine in lowering selling price and the effect of the lower selling price upon effective demand. In no two cases will these effects be quite the same.[5]

Professor Pigou, in reviewing the opinions of recent writers, says:

> An occasional failure of this kind is admitted by all. Still, broadly speaking, inventions, as a general rule are believed by those who have studied the matter to increase and not to diminish, employment at the point at which they act. . . . Now I am not concerned to deny the empirical part of these conclusions. I do not dispute the Poor Law Commissioners' assertion that the conditions necessary to

3. Babbage, Economy of Machinery and Manufactures, Fourth Edition, 1838, pp. 334–341.
4. J. S. Mill, Principles of Political Economy, 1848, p. 113.
5. J. A. Hobson, The Industrial System, 1909, pp. 280–281.

secure that increased employment in any sphere will ultimately result from an invention in that sphere are, as a matter of practice, usually fulfilled.[6]

Since the question is, as Professor Pigou phrases it, an "empirical" one, a final solution could be reached only by an actual count. It is certain that in some cases no adequate increase in demand occurs. Whether the class of cases in which a fully compensating demand occurs is larger or smaller than that in which it does not, is unknown. Certainly the probability of the occurrence of such a compensating increase in employment is far less than it was thought to be by most of the classical economists.

There is one theoretical consideration which counts heavily against the "usualness" of a compensating increase in production. The saving on direct labor cost for each unit produced, which accompanies the introduction of machinery, is certain, for two reasons, to be in a greater percentage than the reduction in the price of the article. In the first place, the cost of the machinery and royalties must enter into the price. Secondly, the cost of the material is ordinarily not changed by the introduction of machinery. If, therefore, the elasticity of demand for the article is not greater than one, the percentage increase in production will be less than the percentage reduction in the unit labor cost. Under these conditions, unless the rate of wages is reduced by the substitution of cheaper labor, the number of laborers will be reduced.

There is still another consideration applicable to some cases of the introduction of machinery, which makes against the probability of a large increase in demand, occurring within a period of time sufficiently short to benefit the workers already in the trade. Where the use

6. A. C. Pigou, The Economics of Welfare, 1920, pp. 717–718.

of the machine is confined to the patentees or to selected manufactures, the users of the machine may decide that their interests lie in upholding prices rather than in giving the public a larger part of the benefits of the invention. The expansion in demand which might be achieved by lower prices is estimated less highly than the certainty of larger unit profits. Both the Owens Bottle Company and the American Window Glass Company marketed their patents on the principle that less would be gained by a destructive price war, than by taking a considerable part of the market at a more remunerative price.[7] This policy, as has been noted above, operates to retard the introduction of the machine, but it also operates to retard the fall in price.

In the cases of the introduction of machinery studied, the increase in demand within the introductory period, which alone has any effect in bringing about the avoidance of displacement of skill, has been an important factor in one field only, that of the introduction of the linotype. From 1887 to 1895 the cheapening in the cost of composition through the introduction of the linotype did not lead to a compensating increase in demand for labor, but from 1895 on there was a considerable increase in the amount of printing done, which after 1897 was sufficient to compensate for the labor saved by the machine. The character of this increase in demand, however, was peculiar. If it had taken the form of a reduction in price and an increased volume of sales of existing newspapers and magazines, the printers would not have benefited, altho the pressmen would have been helped. Fortunately for the printers, the cheaper cost of composition led to competition among the publishers in the size of the newspapers.[8] Some increase in the

7. The Glass Industry as affected by the War: Tariff Information Series, No. 5, pp. 75, 79, 129.

8. "Introduction of the Linotype," pp. 254–255.

number of newspapers and magazines and in other kinds of printing was attributable to the cheaper cost of composition, but it was relatively unimportant.

The use of the stone-planer materially lowered the price of cut stone, but the output did not increase. This curious situation was attributed in the trade to the increasing competition of terra-cotta and concrete.[9] After the semi-automatic bottle machine was introduced, the price of wide-mouth bottles — the only kind made at that time on the machine — was reduced somewhat. The increase in production, however, was far from sufficient to compensate for the saving in skilled labor. There was at the time a rapidly widening use of bottles as containers, but the increase in the production of wide-mouth bottles was not appreciably greater than that of other classes of bottles, despite the fact that some users of bottles substituted wide-mouth bottles for narrow-mouth bottles.[1] From 1905 to 1914, the decrease in the price of bottles made on the Owens bottle machine was, as nearly as can be ascertained, about 15 per cent, and the production of all classes of bottles taken together doubled. The rate of increase was no greater in this period, however, for the classes of bottles made on the Owens machine than it had been in the period from 1899 to 1904. The great extension in the use of bottles from 1899 to 1919 appears to have been due primarily to changes in taste which demanded glass-packed goods for sanitary reasons.[2]

In none of the foregoing cases, except that of the linotype, can any considerable degree of increase in production be ascribed with certainty to a reduction in

9. "The Stonecutters' Union and the Stone-Planer," p. 420.

1. "The Introduction of Semi-Automatic Bottle Machinery," pp. 342–343.

2. "The Introduction of Semi-Automatic Bottle Machinery," p. 342; "The Introduction of Automatic Bottle Machines," p. 548.

cost due to the introduction of the machine. Other factors, the changes in demand due to taste and the entrance of competing products, played so much the larger part in determining the amount produced during the period of introduction that the effect of price reductions was relatively unimportant.

IV

If the increase in production due to the introduction of machinery were always directly proportional to the displacing power of the machine, displacing power would be only an element in increase in production. Since this is not the case, the displacing power of the machine is to be regarded as a primary factor in determining displacement. A case of high displacing power coming under the observation of Senior was responsible for a modification in the doctrine of a compensating increase in demand. He said:

> A small screw was shown to us at Birmingham which, in the manufacture of corkscrews, performed the work of fifty-nine men; with its assistance one man could cut a spiral groove in as many corkscrew shanks as sixty men could have cut in the same time with the tools previously in use. As the use of corkscrews is limited, it is not probable that the demand for them has sufficiently increased to enable the whole number of laborers previously employed in their manufacture to remain so employed after such an increase in their productive power. Some of the corkscrew makers, therefore, must have been thrown out of work, and the rate of wages in that trade probably fell. . . . The example taken from the manufacture of corkscrews is as unfavorable to the effects of machinery as can be proposed; for the use of the commodity is supposed to be unable to keep up with the increased power of production and the whole number of laborers employed on it is consequently diminished. This, however, is a very rare occurrence. The usual effect of an increase in the facility of producing a commodity is so to increase its consumption as to occasion the employment of more, not less, labor than before.[3]

3. Nassau William Senior, Political Economy, Third Edition, pp. 165–166.

In the cases of the introduction of machinery studied, the displacing power of the machines varied widely. One man on the stone-planer is capable of producing as much as eight men can produce by hand. One man on the semi-automatic bottle machine can make as many bottles as four hand-blowers. A linotype operator can set up as much matter as four hand-compositors. The Owens bottle machine in its latest forms is capable of an output per operative equal to that of eighteen hand-blowers. The displacing power of the machine in all the cases studied, as has already been noted, was less at the beginning of the period of introduction, than it was later.

V

The final factor in determining the amount of displacement is the degree to which the skill of the hand worker is useful in connection with the machine process. This demand for skill may take one or both of two forms. First, the machine may take over only one of several coöperant parts of a trade and leave the other parts of the trade untouched, as in printing, where proof-reading, and make-up were unaffected by the linotype; or in stonecutting, where carving and some other parts of the work of the stonecutter could not be done by the planer. In such cases, it is possible that a small expansion in demand may be sufficient to retain the same total number of skilled workmen. When, however, the part of the trade affected by the machine is relatively small, the reduction in price is likely also to be small.

This factor was of relatively small importance in salvaging the skill of the stonecutters since, as has been noted above, no increase in demand occurred. The introduction of the linotype, on the contrary, was accompanied by a large increase in the number of proof-readers,

make-ups and other auxiliary skilled workmen required. This increase was of considerable importance in avoiding displacement, altho, as has been noted above, its full effect was not realized on account of the difficulty of moving compositors on straight matter into other positions.

The second form of the demand for the skill of the handworker in connection with the machine process, occurs where the skill of the handworker is useful in some degree in the working of the machine. Even if there is no increase in the demand for the article, if the skill of the handworker is useful, the employment of part of the handworkers at something more than the wage of an unskilled worker is certain.

The classical economists, for the most part, did not concern themselves with the effects of a change in the quality of the labor caused by the introduction of machinery, since they were intent on the effect of machinery on general wages. They were inclined to minimize the hardships of displacement of skill. Thus McCulloch, after admitting that there may be cases in which there is a reduction in the number of persons employed in the trade affected, says:

> Ultimately, therefore, the introduction of machines cannot fail of being highly advantageous to the laborer; and even when first resorted to, they never impose on him any other hardship than that of occasionally forcing him to change his business. This, however, is seldom a very material one. A person trained to habits of industry and application can be easily moved from one employment to another. . . . It is easy for a weaver of cottons to become a weaver of woolens or linen.[4]

Appropriately enough, Babbage, the discoverer of the fourth principle of the division of labor, was the first writer of distinction to dwell at length upon this aspect

4. McCulloch, Principles of Political Economy, Second Edition, pp. 194–195.

of the problem. After citing statistics as to the increased number of weavers employed after the introduction of power looms, he says:

> In considering this increase of employment, it must be admitted that the two thousand persons thrown out of work are not exactly of the same class as those called into employment by the power-looms. A hand-weaver must possess bodily strength, which is not essential for a person attending a power loom; consequently, women and young persons of both sexes, from fifteen to seventeen years of age, find employment in power-loom factories.[5]

The superiority of the handworker as an operator of the machine over the unskilled worker is a matter of degree. The probability that a machine which performs the work formerly done by skilled handworkers will require for its operation exactly the skill possessed by the handworker must be very small. On the other hand, the probability that the machine will require for its most successful working some part of the skill of the handworker is large. Whether the skill possessed by the handworkers will be salvaged by their employment as operatives depends, therefore, upon several factors: (1) the overhead cost of operating the machine; (2) the degree to which the skill of the handworker contributes to the successful working of the machine; and (3) the relative price of skilled and unskilled labor. The vari-

5. Babbage, Economy of Manufactures, Fourth Edition, p. 339. A lively appreciation of the effects of the displacement of skill on the hand-worker led the same writer to offer suggestions as to how the individuals affected might minimize the evil consequences. "Increased intelligence amongst the working classes may enable them to foresee some of those improvements which are likely for a time to affect the value of their labour, and the assistance of Savings Bank and Friendly Societies (the advantages of which can never be too frequently or too strongly pressed upon their attention), may be of some avail in remedying the evil; but it may be useful also to suggest to them, that a diversity of employments amongst the members of one family will tend, in some measure, to mitigate the privations which arise from fluctuation in the value of labour." Ibid., p. 340.

ous combinations of these factors may be illustrated from the history of the introduction of machinery.

When the linotype was being introduced, it was believed by many employers that the machines could be profitably operated by persons who had not had a training as printers. It was soon found, however, that almost every part of the skill of the hand compositor is useful in the working of the machine and that printers were far more efficient than those who had no knowledge of the trade. The overhead cost of the machine — interest, maintenance, rent of space, power, etc. — is almost identical whether the daily output is large or small, and this overhead cost is relatively large in comparison with the daily wage of the operative. Under these conditions a much smaller difference in output between printers and unskilled workers than actually existed would have been sufficient to turn the scale in favor of skilled hand compositors as machine operators.[6]

A somewhat similar situation was presented by the introduction of the semi-automatic bottle machines. Here the skill required was certainly far less than that required for blowing bottles by hand. The issue presented was not, however, whether skilled men should be employed, but whether the bottle-blowers or workmen of a kindred trade — gatherers and pressers — possessed in higher degree the requisite skill. The contest was finally decided, chiefly by the pressure of the blowers' union, in favor of the bottle-blowers. That the bottle-blowers possessed skill which was valuable in the operation of the machines is undoubted. It is equally certain that much of their skill was not useful in the operation of the machine. The output of the machine, however, was directly dependent on the skill of the operators and the overhead cost was large. In a very

6. "The Introduction of the Linotype," pp. 271–273.

short time, the wages paid the machine operators was as high as that of skilled bottle-blowers.[7]

The circumstances attending the introduction of the stone-planer were in some respects favorable to the employment of skilled stonecutters. The output was dependent on the skill of the operative, and some of the skill of the stonecutter was useful in working the planer. The policy of the union in opposing the introduction of the planer, and the relocation of the industry, were largely responsible for the relatively small employment of the stonecutters as planer-men.[8]

The influence of a relatively large wage differential as an obstacle to the employment of handworkers as machine operatives is illustrated by the history of the introduction of automatic bottle machines. When the Owens bottle machine was introduced in 1905, the disparity in wages between bottle-blowers and unskilled workmen was very great. The machine is automatic and its speed is not governed by the attendants. Under these circumstances the attendants were drawn almost entirely from the ranks of unskilled labor. The flow and feed devices for the automatic manufacture of glass bottles, introduced more than a decade after the Owens machines, require somewhat more attention on the part of the attendants than the Owens machine, but their speed also is independent of the attendant. A great change had occurred meanwhile, however, in the relative wages of skilled bottle-blowers and unskilled laborers. While in 1905 a bottle-blower received from three to four times as much as an unskilled laborer, in 1917 unskilled laborers were receiving half as much as bottle-blowers. Altho the amount of skill which the bottle-blowers could contribute to the operation of the

7. "The Introduction of Semi-Automatic Bottle Machinery," p. 355.
8. "The Stonecutters' Union and the Stone-Planer," p. 435.

devices was not large, the employers generally were willing to pay something over and above unskilled wages to secure that skill.[9]

In the cases of the introduction of machinery studied, the five enumerated factors combine in a great variety of ways to bring about great differences in the displacement of skill suffered. The fortunate outcome in the introduction of the linotype was due to the low displacing power of the machine, the large extent of the use of skilled men as coöperant workers and as machine operators, together with an increase in production. The almost equally fortunate outcome in the case of the semi-automatic bottle machine was due to the low displacing power of the machine, the small part of the whole trade involved, the use of skilled men as operators, combined with a rapid increase in the use of almost all forms of glass containers. The great displacement of skill in the introduction of the stone-planer was due to a combination of high displacing power, small use of skilled workers in connection with the machine process, and no expansion in production. A combination of very high displacing power, no use of skilled workers in the machine process, the rapid extension of the machine to the different products of the handworker, despite a very rapid growth in production, was responsible for the disastrous experience of the bottle-blowers with automatic bottle machinery.

The question naturally arises as to whether greater importance may be ascribed to one or more of these factors as against the others. From one point of view the answer is in the negative, since there are doubtless cases of the introduction of machinery in which each of them

9. "The Introduction of Automatic Bottle Machines," pp. 562–563, 572.

assumes a leading rôle. But from another point of view, a line may be drawn between those factors which make for the displacement of skill and those factors which make for its salvage. The strength of the attacking factors — the labor-displacing power of the machine and the rapidity with which it is adapted to the various products and processes of the handworker — is determined by mechanical facts; it may, therefore, be very small or very large. On the other hand, the chief salvaging factors — the increase in demand and the mobility of labor — are economic and work in a medium much less favorable to the attainment of great force. In a group of cases of the introduction of machinery, the variability in the force of the mechanical attacking factors is greater than in that of the economic salvaging factors. From this point of view, therefore, the leading element in determining the displacement of skill is the amount of the disturbance, measured chiefly by the labor-displacing power of the machine and the rapidity with which it invades the trade. If the disturbance is large, the displacement will also, probably, be large.

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PROFESSOR KNIGHT ON PSYCHOLOGY

PROFESSOR KNIGHT in two penetrating and vigorous articles [1] has recently set forth the view that economics is, or at any rate ought to be, more than a branch of mere science — a part of what he calls ethics and esthetics as well. In taking this view he finds himself in opposition to much of modern scientific psychology, but he centers his attack on one school of psychologists — the behaviorists. In so doing he achieves a rare distinction by beginning one of his articles with an admirably fair formulation of certain aspects of the position he is attacking — a formulation that many of his opponents (including the present writer) could accept with relatively slight amendment.

The conclusions of these two papers may be conveniently grouped as follows: (1) It is part of the task of the social sciences to concern themselves with human purposes, and to appraise our economic system. That system not only satisfies wants but in large measure also determines their survival and evolution; it should be judged, therefore, both as a satisfier and as a determiner of wants. (2) The applicability of scientific method is limited; we can never know *values* scientifically, tho we may know in this way the objective facts of exchange; in order to understand values as such, we must employ a "higher" process of the human mind than scientific method. With the first set of conclusions and their im-

1. "Economic Psychology and the Value Problem," Quarterly Journal of Economics, May, 1925; and "Fact and Metaphysics in Economic Psychology," American Economic Review, June, 1925 (hereafter referred to as Q. J. E. and A. E. R. respectively).

plications as set forth by Professor Knight there is no disposition here to quarrel so far as major issues are concerned. On the contrary there is pleasure in recording hearty agreement. No doubt these conclusions follow logically from Professor Knight's position. The present writer holds that they follow equally from the position he is criticizing. But for brevity's sake he will not undertake to prove this proposition here. The quarrel is with the second set of conclusions.

Without that disrespect to philosophy in general which Professor Knight so much deplores, one may fairly call in question the particular philosophical position through which he seeks to delimit the scope of scientific method in dealing with human affairs, especially when he tells us that science is further from common sense than his own abstract and avowedly speculative philosophy.[2] Still more may one question Professor Knight's findings without disrespect to philosophers when he calls on them to arbitrate an alleged conflict between reason and common sense.[3] As if philosophers, were agreed upon this issue of the conflict between reason and common sense, if indeed there is a conflict here except as seen from a particular philosophical position such as Professor Knight's!

The argument by which Professor Knight claims to have demonstrated the limited applicability of scientific methods in dealing with men, and more especially with values, may be called a process of elimination. Apparently he holds, somewhat after the manner of Bergson, that there are two methods of knowing, the scientific, and what we shall call the ethical-esthetic. The scientific method according to Professor Knight includes objective observation, which furnishes the data that science classifies and analyzes. In its classifica-

2. Q. J. E., p. 378.

3. Q. J. E., p. 377.

tion and analysis of these data science employs "static" categories (that is, presumably, terms the meanings of which do not change in the course of the discussion) and exact reasoning; but it is confined to these data of observation and excludes matters of inference. Its ultimate test (and possibly he means that of the other sort of knowledge too) is intelligent communicability. The ethical-esthetic "apparatus of thought and communication" is not very fully described.[4] It is "higher," and this sort of knowledge is less exact and more "immediate" (apparently as distinguished from "inferred"). As contrasted with the scientific or "outside" method of knowing, it is knowing "from the inside . . . by identifying ourselves in a real sense with the object of knowledge." Professor Knight finds that desire and choice are (like other "conscious states") matters of inference for science. They are not objectively observable, not scientific data, except in a sense which makes the hedonistic analysis purely a tautology.[5] Furthermore, he argues, attempts to apply scientific logic to values and to the observation process lead to impossible conclusions, and this casts a reflection on the validity of scientific logic.[6] And again, he urges, desire and choice as "conscious states" "make prediction and control impossible to the extent that they function as causes" [7] of physical behavior. "Behavior mechanics" taken alone is inadequate and will not work as a basis for deal-

4. On these two methods see Q. J. E., pp. 382–383, 404–405; A. E. R., p. 266.

5. Q. J. E., pp. 375–377, 387. One wonders why, if "desire" is really the analogue of "force" (in what Professor Knight would call the behavioristic senses of these terms), the physicist's use of "force" is not also tautologous; or, if physics escapes tautology, why a scientific hedonism should not escape it too.

6. Q. J. E., p. 400. Is Professor Knight employing a non-scientific logic, or does his argument cast a reflection upon its own validity?

7. Q. J. E., p. 376.

ing with people.[8] Therefore, he concludes, values as such can never be treated by scientific methods. But they are real and objective by the scientific test of intelligent communicability. Moreover he finds that consciousness is "presupposed" by science in communicability,[9] and that value is "presupposed" in the observation process, which is always relative to some interest of (value for) the observer.[1] Hence consciousness and value are real, but one of our two methods of knowing, the more exact scientific method, can never get at them, so that for our understanding of mind and value we must have recourse to the immediate, non-analytical, ethical-esthetic method. And "motives resist reduction to any common measure or principle in any terms simpler in their own kind than value itself." [2] Professor Knight apparently feels that values can be known "from the inside" "immediately," but cannot be analyzed according to the methods of (scientific) logic.

If one thinks of the scientific method of attaining knowledge not as one of two knowing faculties or powers of the mind, each having its own sphere of knowledge, but rather as a method of knowing differing from common sense in being more systematic and accurate in employing the same type of data and much the same sort of reasoning, one will be likely to think Professor Knight's argument largely destructive. But perhaps the want of a more detailed account of the ethical-esthetic faculty of knowing (especially if it is to be identified with Bergson's intuition) should rather leave one wondering whether Professor Knight is not essentially a mystic. Otherwise why should he tell us that *interests* are real in an ultra-scientific (literally metaphysical or super-

8. Q. J. E., p. 390.
9. Q. J. E., p. 381.
1. Q. J. E., p. 397.
2. Q. J. E., p. 401.

natural) sense "to which it is difficult if not impossible to give clear expression in language"? [3]

The issue seems to be: Shall we continue our present reliance on statistical technique, our efforts to put psychology and social science (including economic theory) into the form of objectively verifiable hypotheses? Or shall we, regarding it as an egregious error to seek to understand minds and purposes scientifically, and relegating the objective, scientific approach to "a subordinate and instrumental rôle" in the study of man, place our main emphasis on an approach "from the inside," and follow a program of investigation the precise nature of which Professor Knight has not yet made clear? His argument for the latter course is open to a double attack. (1) We may question the psychological hypothesis as to the nature of thought, on which his whole argument depends. Instead of supposing with Professor Knight that man has "two types of thought, between which there is no bridge," — (*a*) a scientific type, appropriate to physics and the "mechanics" of exchange; and (*b*) an ethical-esthetic type, appropriate to understanding minds and values and the chief reliance in the field of social "science," — it seems preferable to hold that thought is an activity, the different types of which shade off gradually into one another; that the scientific method of attaining knowledge as a type of thinking differs from other thinking by being systematic and careful in a higher degree; and that its proper sphere is not limited to a part of the field of knowledge but is coextensive with the entire field. Unless Professor Knight can show that "our minds do have an apparatus of thought and communication different [in kind] from that of scientific logic," he can hardly hope to establish its supremacy in dealing with mind and value by attack-

3. A. E. R., p. 249.

ing the achievements of scientific method in this field of thought. (2) We may question the accuracy and adequacy of Professor Knight's conception of scientific method in general and as applied to man. It will be argued that he wrongly excludes inference from science, and wrongly conceives all scientific method to be patterned closely on that of mechanics, so that he is in part attacking a straw man. It will also be argued that he does not substantiate the charge of "flagrant inconsistencies" in the nature of science, and that he confuses the want of present success in the anthropological sciences with the impossibility of success in the future.

(1) The validity of Professor Knight's attempt to delimit the scope of scientific method depends first of all upon the correctness of his enumeration of the alternatives. Do our minds have a scientific apparatus of thinking and knowing, and another "higher" apparatus in addition? Professor Knight recognizes that the psychology of knowledge is fundamentally the point at issue.[4] It is surprising, therefore, that he not only offers little constructive argument in support of his own views on this subject, but that he has scarcely discussed at all the views of the psychologists whom he is chiefly attacking. He does tell us that the behaviorist view involves an *infinite progressus* of talk to explain talk, talk to explain the explanation, etc.,[5] and he dogmatically asserts that "only grammatically does the statement [of the behaviorist's theory] make sense." But both his attack upon the behavioristic psychology of knowledge (which,

4. Q. J. E., pp. 373–374.

5. A. E. R., p. 255. In holding that an explanation of a thing is a form of response to (talking or thinking about) it, the behaviorist or other psychologist would be bound to admit that if each of these explanatory responses were to be itself explained by a subsequent response to itself as a stimulus, there would be an infinite (temporal) progressus. He need not hold that such a series will ever take place. Moreover it is hardly a sufficient refutation of a theory to show that it thus involves the notion of infinity.

in contrast to his dualism, we might call monistic or perhaps pluralistic) and his defense of his own theory that the mind has two faculties of thought, are so much incidental to his discussion of the world that men know and think about that it would easily be possible to read both his articles and not realize that the psychology of knowledge and thought was at the very heart of the argument. Yet if he means to establish by the process of elimination that human purposes, in their "uniqueness" and growth, can only be understood by his "higher" apparatus of thought, he must first of all establish the correctness of this dualistic psychology of thought. And his views on this subject would probably receive little more support from introspectionists like Titchener or Woodworth than from Watson. Whatever may be the merits of his theory, it is in conflict not only with the behaviorists, but also with most of the other psychologists, at least in this country. And so far as these two articles go, his view is not only largely unsupported, but his conception of the "higher" apparatus of thought is not even clearly stated — perhaps this conception is one "to which it is difficult if not impossible to give clear expression in language." At all events it is difficult to state his dualistic epistemology except in terms strongly reminiscent of the long-discarded "faculty psychology."

But while a particular psychological [6] problem (that of the nature of thought) is the battle ground, the issue has a wider aspect. Science has repeatedly had to face the attempt to delimit its scope and set aside a field of knowledge which it could not enter. In the past this conflict has been associated with such men as Galileo and Darwin. Without meaning to appraise living greatness or to subscribe to a heroistic interpretation of the

6. Professor Knight would probably prefer to call it a "philosophical" problem, one which falls outside the proper field of science.

history of thought, we may add as one who typifies the position around which the controversy centers to-day, Watson. Watson himself has suggested that the attempt to delimit the field of science by hypothecating a realm of "phenomena" which can never be gotten at scientifically may be a defense of religion and absolutistic philosophy.[7] Professor Knight appears to use this delimitation as a defense of the "will to believe," and he has recourse to an argument which has also been employed by modern theology.[8] Not that scientific method is opposed to any belief as such, religious or otherwise. On the contrary it requires us to test *each possible view* fairly by reason and by observation, and then to face the truth fearlessly, whatever the verdict may be. Nor need one who objects to the attempt to delimit the scope of science, hold that it will be uniformly and completely successful everywhere. But pragmatically it is a good working hypothesis to assume that we can gain by systematic observations checked against one another, by precise use of terms, and by accurate reasoning, an hypothesis not lightly to be discarded. If no one has yet succeeded in understanding values scientifically, we should not, for want of early success, give up when psychology is still so young a science.

(2) But is the method which Professor Knight finds incapable of dealing with *value* and *mind* properly to be identified as "scientific method"? To begin with, he finds that in the field of physics

> scientific thought has generated self-contradictions, and ends in analyzing all perceptible and imaginable qualities of things entirely out of existence.[9] [Thus he refers to certain] flagrant contradictions of thought in the modern theory of matter, familiar to every critical student of the subject,

7. "Psychology from the Standpoint of a Behaviorist," 1919, pp. 325–326.
8. G. A. Coe, "Psychology of Religion," 1916, especially p. 247.
9. A. E. R., p. 258. See also p. 253.

which appear to be that physics analyzes the visible and other qualities of objects out of existence, and yet proceeds to use these qualities as elementary terms in the analysis. The issue really is, therefore, — does it destroy redness to understand it as a quality of objects by virtue of which they reflect light-waves chiefly of a wave length of about .0007 mm.? Or is water less wet for being known as H_2O? Professor Knight *assumes without explanation* that such "analyzing" is necessarily "analyzing out of existence," but "common sense" at least is not clearly on his side in this assumption; and the present writer hazards the guess that by "critical student" he necessarily means a non-behaviorist.

Professor Knight further argues that the attempts to maintain a thoroly scientific and logical view both in the investigation of inanimate bodies and in that of men leads to an irreconcilable conflict with "common sense." "The physicist," he tells us, "constantly recognizes that he really knows nothing about *force*" as a cause which " 'makes' things happen." [1] And in the anthropological field an exclusive reliance on science requires us to deny consciousness to the human organism,[2] and consequently to exclude from the realm of the known such things as desire and feeling,[3] interests and motives,[4] purpose [5] and value,[6] meaning and the communication of ideas.[7] Yet, he dogmatically asserts, it is an obvious fact

> that no human being really disbelieves in the reality of force as an element in the external existent world, any more than he doubts the fact of consciousness in his fellow human beings.[8]

1. Q. J. E., pp. 378–379.
2. Q. J. E., p. 375; A. E. R., p. 248.
3. Q. J. E., p. 375.
4. A. E. R., pp. 249–250; Q. J. E., pp. 386–387.
5. Q. J. E., p. 394.
6. Q. J. E., pp. 401–402.
7. Q. J. E., p. 381.
8. Q. J. E., p. 382.

As if this so-called "obvious fact" were not precisely the point at issue in the sense in which he needs it for his argument! Neither the physicist nor the psychologist needs to accept this "fact" in a sense which contradicts his science, nor in standing by his science to deny or overlook what is obvious and really disbelieved by no one.

Let it be said once for all that the behaviorist as well as any other psychologist — and as we shall see Professor Knight's attack, tho nominally on behaviorism, is on the science of psychology as such — believes that men have *minds* and *interests*, that they *are conscious* of things going on around them, that things have *values* and words have *meanings* for them, and that men *communicate* with one another. The behaviorist does not deny mind, interest, value, etc., "making all control an illusion" (which is what Professor Knight appears to think), and then proceed to act as if he believed in these things, science itself being avowedly instrumental and purposive.[9] The behaviorist does reserve the right which Professor Knight assumes for himself — the right to conceive mind and value in his own way. Professor Knight is rather like the man who defines an atheist as one who believes in a different kind of god from that in which he believes. The issue is not as to the existence of mind, value, etc., but whether Professor Knight's admittedly unscientific conceptions of these things or the

9. Q. J. E., p. 388; A. E. R., p. 255. In one form Professor Knight's argument as to the self-contradictory nature of the behaviorist's position becomes an attempt to lift himself up intellectually by his bootstraps. The behaviorist, he urges, recognizes the correctness of Professor Knight's position in the very act of arguing against it. (A. E. R., pp. 249, 255, 258.) Of course the question at issue is precisely whether a scientific psychological account (such as that of the behaviorist) or Professor Knight's account of the sort of conscious, purposive, communicative human behavior called "arguing against Professor Knight" is the correct one. Professor Knight assumes his case established in this argument.

conceptions of a scientific psychology — behavioristic or otherwise — shall prevail.

As for physics, the careful physicist employs the concept of "force" only as an objectively measurable relation between two bodies; and any further conception of force as a "real existence" "which makes objects fall" or move, serves not to add to an accurate, practical understanding of inanimate objects and their behavior, but rather to create confusion by thinking of them as if they were human beings.[1]

Professor Knight's exclusion of mind and value from the realm of scientific knowledge depends in part on his notion that "inferences" have no place in science,[2] excepting that observations in an important sense involve inference. Yet he seems to admit [3] that electrons, etc., are at least as truly matters of inference as values. And it is difficult to see how science can employ *logic* without employing *inference*. If values are to be excluded from science it will have to be on some other ground than that they are inferred rather than observed, for surely it is not unscientific to draw inferences. A more accurate formulation of the relation of observation and inference in scientific method would probably assert that for the most part science confines itself to making and investigating hypotheses which can be tested empirically. That is, as Professor Knight has so admirably said of tautological hedonism,[4] an hypothesis which cannot be tested by comparing observation with a previous pre-

1. The thoroly anthropomorphic character of Professor Knight's thinking on this subject is apparent from the following passage: "The idea of force in connection with the motion of objects in space is a *feeling of effort which we read into them* on the basis of our own experience." Q. J. E., p. 381. (Italics are the present writer's.) And yet he thinks that "candid reflection" will show us all to be equally anthropomorphic in our habits of thought.

2. Q. J. E., p. 375.

3. A. E. R., p. 253.

4. Q. J. E., p. 377.

diction (inference) is unscientific. On this ground Professor Knight clearly cannot exclude values, or at any rate feelings and purposes, from science, since he also argues [5] that any scientific hypothesis will in the nature of the case, where feelings and purposes make a difference, yield predictions which disagree with observable facts; that in the field of human activity the application of scientific technique alone will not work as a method of controlling behavior. In other words, he holds that hypotheses regarding emotional and purposive behavior can be tested by observation, but will always be found wanting.

This argument, while making it perfectly clear that scientific method, properly conceived, will seek to deal with values as well as with electrons or "the other side of the moon," suggests a limitation of another sort: science may try to understand human beings, but alone it can never succeed. The postulate of "uniformity of nature" on which all science rests, does not hold for human nature, since human organisms "do not remain unchanged through successive reactions. . . . They have memory." [6] But the sort of change of human nature involved in memory does not necessarily invalidate the postulate of "uniformity." This "requirement [of uniformity] for predicting future behavior from that of the past" will be satisfied, if only memory or "association" is a *change* in a human being that *takes place uniformly*, so that psychologists can describe the change in terms of "laws of association."

But the essence of the issue here involved is not tied

5. Q. J. E., p. 388.

6. A. E. R., p. 258. Professor Knight gets into difficulty when he asserts that "Human 'bodies,' to be sure, have all the physical (universal, uniform, and inexorable) qualities of other objects," for he seems also to be denying to human bodies the uniformity of nature which in inanimate bodies makes prediction and control of their behavior possible. They cannot both have and lack this quality of uniformity at the same time!

up with any particular uniformity or lack of it. Professor Knight desires to show that science alone *can never* succeed in predicting human behavior, and he cites evidence to show that it *cannot now* predict successfully. To assume (1) that it is theoretically possible to give a scientific explanation of "the infinitely various 'responses' of different individuals" whom one chances to meet as he goes down the street, the stimulus having been in each case for the experimenter to "thumb his nose at them or offer to present each with a dollar bill," and (2) that "only 'practical difficulties' prevent" such a scientific explanation, is obviously not "pure dogma, the antithesis of science." In asserting that it is,[7] Professor Knight has confused two different sorts of possibility, or rather what science has not now accomplished with what it can never accomplish. If "is theoretically possible" means "possible in the present state of the science of psychology," the assumption is simply contrary to fact. But if the assumption is amended to read, "may some day be possible," and for his purposes Professor Knight must show that it is also untrue in this form, the assumption becomes about equally difficult to prove or to disprove *a priori*. But it is an hypothesis which has been found fruitful in the past, and may be again. At all events "can't never did anything," and we are more likely to make progress in psychology and the social sciences if we act on the assumption of a sufficient uniformity of human nature to make progress possible.

But if scientific methods are to be freely and optimistically employed in the study of man, there is surely ample justification for the criticism which Professor Knight's Bergsonian epistemology offers of those who would attempt to apply the methods of mechanics in economics or psychology. If scientific method is to be

7. A. E. R., p. 257.

applied to such diverse materials as human and celestial bodies, it can only be because that method is adaptable to its varied subject matter. But our "apparatus of thought" and knowledge need not be like a two-speed auto. Rather it may be a (scientific) method which is continuously variable like its subject matter, with differing concepts and technique of observation, according as the subject matter is the structure and behavior of inorganic bodies, or of protozoa, the structure and functioning of metazoan organs and tissues, the anatomy and behavior of some "higher" vertebrate organism as a whole, or the organization and behavior of groups of homo sapiens. And if Professor Knight means to imply that the behaviorist in psychology or the institutionalist in economics [8] is seeking to apply the methods of mechanics to man, he could more fairly bring this charge against older views, such as that of the "structuralist" in psychology, and in the social sciences, such as his own view that "there is a science of economics, a true and even exact science, which reaches laws as universal as those of mathematics and mechanics." [9] The behaviorist and the institutionalist believe their subjects to be biological sciences, and they employ concepts and (statistical) methods appropriate to classes of which the individual members differ from one another, to species that originate and evolve. As biologists, their observational technique includes collecting specimens ("case work") and unearthing the remains of the past, as well as laboratory experiment.

If the attempts of the behaviorist and the institutionalist to apply scientific method to human beings have thus far led to impossible conclusions, — and it is by no means clear they involve the difficulties Professor

8. He cites L. K. Frank's "Emancipation of Economics," A. E. R., March, 1924.

9. See Trend of Economics, 1924. Ed. by R. G. Tugwell, p. 256.

Knight supposes, — we ought to remember that it still remains possible that a happier application may be made hereafter. But how fairly has Professor Knight conceived these attempts to apply scientific method to man? He is chiefly concerned here with that of the behaviorist, and certainly his discussion of "behavior mechanics" presents a mere caricature of the position he is criticising. The behaviorist is under no compulsion to make the mistake of the early devotees of "scientific management," and assume that men behave like machines, never tired, never angry, with no good will to enlist. On the contrary, investigating emotional and purposive behavior is part of his avowed job — to study the behavior of the organism as a whole. Moreover he is quite as able to predict and control behavior accurately as is the psychologist who believes in mental states or processes, each of which is "paralleled" by a physiological (nervous) state or process. Both believe that the physical facts pertaining to the organism and its environment are adequate data for predicting and controlling the organism's behavior. And probably most American psychologists are either "parallelists" or behaviorists. When Professor Knight tells us that "The interpretation of human conduct in terms of 'behavior patterns,' inherited or acquired, in relation to 'situations' . . . will not work," he is indicting parallelists as well as behaviorists. Both in this assertion that the postulate of uniformity of nature as applied to man "is practically false" [1] and in his insistence that psychology to be scientific must be behavioristic, and to be behavioristic must leave out essential data, Professor Knight is attacking not behaviorism alone but

1. A. E. R., p. 262. The form here given to the postulate is that "the sequence [of human behavior facts] is really complete on a purely physical level," a common form for the "parallelist." See also Q. J. E., p. 390.

the very possibility of psychology as a scientific account of mind and human conduct.

As a corollary to the proposition that scientific psychology does not require men to behave in detail like machines or other inanimate objects, we may say that "desire" (as one of Professor Knight's "metaphysical entities") may be the analogue of "force" (as another such entity) but that desire certainly is not the analogue of force from the viewpoint of psychology and physics. Unlike force, desire cannot be measured objectively, and it is extremely doubtful whether Professor Knight is right in assuming that it is quantitative. Incidentally it is doubtful also whether Professor Knight is justified in thinking of desire either as a stimulus [2] or as an end.[3] A further difficulty in the analogy of desire to force is that, while force is commonly an elemental concept in physics, desire is a complex aspect of human behavior, which the psychologist will attempt to resolve into simpler terms. In fact from a scientific standpoint it is difficult to see any analogy between force and desire at all. The whole analogy exists only in Professor Knight's metaphysics.

So much for the two steps in Professor Knight's argument considered as a process of elimination. Viewed now as a whole, the argument assumes another aspect:

> We have [he says] two sources of information in regard to the causes of human behavior, but they do not tell the same story; and yet we cannot disbelieve in the validity of either of them.[4] We are infinitely *more* sure of these [two sets of] more or less contradictory facts than we are of any [logical] principles which will resolve [5]

the conflict between them. Therefore we can better rely upon these contradictory data of (scientific and ethical-esthetic) observation than on our reason. If this is his

2. Q. J. E., p. 399.
3. Q. J. E., p. 387.
4. Q. J. E., p. 383.
5. A. E. R., p. 266.

meaning, as it seems to be, his metaphysic of common sense may fairly be characterized as a careful, scholarly, and closely reasoned defense of slip-shod reasoning and intellectual indolence.

And yet, in spite of his sureness of these two kinds of "observational" data, he finds the data of scientific observation not "immediate" because this type of observation "rests upon ages of mental sophistication" and because it is conditioned by the language into which it must be put.[6] He holds these data to be constructs of an elaborate process of purposive inference, while "the facts of modern genetic [which he apparently regards as non-scientific] psychology" make it "much more natural and easy" to regard the data of ethical-esthetic observation as "immediate."[7] But the argument against immediacy can be transposed [8] to apply to the data of ethical-esthetic observation too, making them also elaborate constructs dependent upon ages of sophistication. Certainly they are equally learned responses for the psychologist and social *scientist*, and equally the result of inference or reasoning. Even if one believes that reasoning has not yet succeeded in resolving the conflict between these two different sources of information (assuming that they are so different as to constitute two distinct types "between which there is no bridge"), why should he assume it never will? Or if the "will to believe" takes precedence over reason, why bother with a reasoned basis for the precedence?

But if it is true that Professor Knight's argument

6. Q. J. E., p. 398. 7. A. E. R., p.254.

8. There are difficulties with transposing literally, since his argument confuses (or identifies?) the thing known with the knowledge of it, and logical priority with chronological priority. The statement in Q. J. E., p. 398, "Knowledge of that which we say we infer [other minds as conscious centers] is logically prior to knowledge of that which we say we observe [e. g., physical objects], since it is a condition of observation itself," should be amended by striking out the first two words and substituting "chronologically" for "logically."

rests on a conception of the nature of scientific method, which, because it smacks too exclusively of mechanics, is inadequate in general, and especially in its applicability to the study of human behavior; if, further, it is true that to conceive thought as continuous is more in accord with modern psychology than to assume with Professor Knight that there are distinct faculties of thought; and finally, if it is true that, while scientific, as distinguished from less logical and systematic, methods may be limited in their applicability to human conduct because of non-uniformity of human nature, still we are only able to get the most out of these methods by assuming that their scope is coextensive with the field of our knowledge; then the outlook for economics as a social *science* is not so dark as Professor Knight's argument would make it. His critique of "quantity of life" and "adaptation" [9] as ("scientific"?) terms into which some have sought to analyze values is surely well made, as is also his critique of the concept of "social control." But instead of accepting Professor Knight's mystical attitude toward human desires and purposes — and he gives us little or nothing in the way of concrete, specific suggestions as to how to study them from this approach — perhaps we may still proceed on the assumption that psychology and social *science* will be able, by improvement of statistical and laboratory technique, by a more exhaustive collection of data, by better definition of terms and formulation of problems, and by accurate reasoning, to render a scientific account of human purposes and values.[1]

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9. Q. J. E., p. 402.

1. For an attempt to treat purpose scientifically see E. C. Tolman, "Instinct and Purpose," Psychological Review, vol. 27, pp. 217 ff.

RAILROADS: RECENT BOOKS AND NEGLECTED PROBLEMS

SUMMARY

I. The qualities a textbook should have, 152. — Estimation of Vanderblue, 156; Jones, 156; Haney, 157; Miller, 159. — II. Neglected Problems: governmental problem, 160; division of through rates, 162; terminals, 163; physical geography, 164; other fields of transportation than railroads, 165.

I

THE appearance of four general treatises [1] in the field of transportation within less than two years is an indication of the recent prominence of the railroad question in American public affairs. The events during and since the war have given rise to problems of such magnitude that marked activity in academic production was inevitable. The concrete experience during the war itself; the Transportation Act of 1920 as a task of post-war rehabilitation; the perennial issues of valuation and of reasonableness of rates; the deadly competition of the motor truck, the bus and the private automobile; together with the phenomenal changes in the technique of the industry — all invite and demand recognition. It is a fitting time, therefore, to take account of stock of the subject, so to speak, to mark tendencies, to note im-

1. Eliot Jones, Principles of Railway Transportation (1924), pp. 607.
Lewis H. Haney, The Business of Railway Transportation: Tariff-Rates-Regulation (1924), pp. 613.
Sidney L. Miller, Railway Transportation, Principles and Point of View (1924), pp. 905.
Homer B. Vanderblue and Kenneth F. Burgess, Railroads, Rates, Service, and Management (1923), pp. 488.

portant contributions, and especially to consider the adequacy of these several treatises to the particular ends held in contemplation by their authors.

Two of these volumes are avowedly intended for textbook use, those namely by Jones and Miller. They deserve, therefore, to be even more rigidly judged by the standards applicable to works of this kind. The other two, by Vanderblue and Burgess, and by Haney, either by avowal or content, appear to be directed to more technical ends. They seek rather to serve the shipper or the professional railroad men, whether legal, traffic, or operating, as the case may be.

The need for taking an account of stock in the transportation field is emphasized by both the merits and the shortcomings of this group of volumes. Especially is this true as expressive of the need of real textbooks in contradistinction to shippers' guides and handbooks, investors' manuals, treatises on legal practice before administrative tribunals, or volumes for the general reader. The multiplication of illustrative material and the wealth of information in recent years has been an incentive toward over-elaboration of detail in all books of this kind; while at the same time this multiplicity has distracted attention from the prime requisite of a clear statement of economic principles. A sound textbook should embody intellectual discipline other than mere memorizing. It should also stimulate the questioning attitude of the student, through statement of fairly debatable propositions which, in the discussion, permit a weighing of evidence and a nice discrimination between cause and effect. Otherwise stated, the ever-present danger in this particular field is of mere description of what is, to the entire neglect of the important issues as to why it is and what it ought to be. This danger, commonly attendant throughout the entire

field of descriptive economics, as distinct from that of economic theory, is further accentuated by the superficial attraction of timeliness. Treatises, whether in banking, foreign trade, labor, or transportation, however excellent their statement of underlying principles, unless continually revised and kept up-to-date, may be supplanted by others which have at least the charm of the current topics class. Nor is the advantage of up-to-dateness merely superficial. In transportation, for example, the developments during the war and post-war periods have materially changed the nature of many of the most important problems. Many years ago the prime issue was of personal discrimination. Then local discrimination came to the forefront. Now, let us say, it may be the governmental attitude toward consolidation as contrasted with competition, or the underlying principle of the Act of 1920. Whatever the shift of emphasis, the earlier treatises, however excellent, must be kept up-to-date in order to be serviceable. Historically speaking, however, the converse is not true. A dead issue may still be as useful for purposes of economic analysis or explanation as if it still gave rise to leading editorials in the newspapers. But, irrespective of the date of publication, the fact remains that the first essential for a good textbook is the minimizing of mere information, and the clear statement and analysis of underlying principles. Illustration is, of course, always in order, if not indispensable. But one good example is enough. There is no need of multiplication. The book may appear less learned; but, on the other hand, it may have far more punch and drive for use with students, just by reason of its restraint and simplification in this regard.

The danger of constant multiplication of economic detail in all sorts of general economic treatises may be

overcome, in part, by a search for broad generalization in place of particularity. In the field of principle, the reasons for things must, of course, be sought and if possible set forth. But a certain generalization of statement, where principles are not necessarily involved, may sometimes most profitably take the place of infinite specification. In this chosen field of transportation, for example, such authors as Haney and Miller devote much attention to the description of all of the different rate territories throughout the country. And even Vanderblue, out of a wealth of material, tends at times to confuse the ordinary student or reader by a head-swimming particularity. Might we not, all of us economic writers, with profit sweep aside a great deal of this encyclopaedic material, so suggestive of the old-fashioned German "System"? The data, in large part, have no deep or abiding value. I doubt if a great deal of it, at the present time, has any significance for the traffic manager or the shipper; much of it has arisen either by chance in the course of time, or because of the very failure of some coördinating authority to put an end to some outcome of individual advantage, now abolished.

What, then, may one best do? First of all, of course, one might discard all of such baldly descriptive material as is set forth by Miller in several hundred pages — on administration, the powers of officers, the details respecting passenger, mail, and express business, and a lot of accounting and statistics. Perfectly worthless for teaching purposes, all of this! It is mere padding, suggestive of that monumental mass of frippery and balderdash in the late literary performance of L. F. Loree. But our problem for the moment is not with this entirely worthless material, but rather with that which seemingly involves matters of importance, while yet the discussion, not being digested and critically stated, falls

far short of teaching anything. The American transcontinental rate problem in most of these books, Miller, Jones, or even Haney, is a case in point. The need is great for some discerning student to qualify and condense the exposition of this whole involved affair, even as, if a bit of personal achievement may be cited, my own analysis of the long-puzzling element of distance in trunk-line rate adjustment was handled now many years ago. The upshot, then, of this phase of the matter is the importance of broad generalization, so far as possible, in place of the itemization which may be said to constitute a general fault of all of these writers now under examination.

As among these four volumes, what about the supreme test of originality, in contra-distinction to mere compilation, an orderly arrangement of well-known facts? In this regard the work of Vanderblue plainly leads. Several chapters dealing with the practice of rate-making are calculated to stimulate both an understanding and a further discussion of underlying economic laws. The chapters on the distance principle, the equalization principle, and the group-rate principle are substantial contributions, based upon accurate and technical observation and analysis. Yet the material, so valuable for the purposes of instruction, is so linked up in this particular volume with highly technical, and especially legal, data as to disqualify the book for general textbook use. Nevertheless, as a treatise on the economics of transportation, it is of much more distinctive quality than any of the others.

The volume by Jones is refreshing and consistent because of the singleness of purpose of the author. He evidently intends to offer it merely as a reliable textbook. He is not ambitious to evolve new theories. Nor does he seek to make the volume serviceable to the

technical specialist. One seeks in vain for evidence of originality, either in statement or in arrangement. It is almost as if the author had written the volume for the sake of recording his studiousness in reading all of the readily available material on the subject. The merit of the work is that it is thoroly dependable — offering a worthy and well-balanced exhibit of the general stock-in-trade on railroading. The viewpoint is liberal; but on most moot points, whether of theory or practice, it is academically conventional throughout. Lucid in presentation, well ordered in arrangement — that is all there is to it. The result is probably the most serviceable textbook on the subject. It marks a distinct advance over the author's earlier volume on the trust problem. That book was patchy, and largely descriptive. The particular shortcoming of this volume is the lack of evidence of any first-hand contact with the industry. There is nothing evidential of having "lived" with the subject. The offering is book knowledge derived from sedulous examination of the official literature. Perhaps what one misses most, after the lack of personality, is any comprehensive discussion of the problems of the future, so fundamental to the welfare of an outspread country like the United States. In neither Jones, nor Miller, for that matter, does the word "motor" appear in the text.

The treatise by Haney approaches the subject "primarily from the standpoint of the consumer of railway service — the shipper." The author avowedly steers "a middle course between the purely theoretical treatise and the merely descriptive aspects of traffic and routes." Unfortunately aiming midway between two targets, the shots go wild with reference to either one. The discussion of economic principles culminates, to be sure, in the attempted development of a new theory of rates. "The

thesis of this work is that the most practical, expedient, and economic railway rates are those which would be established by competition, if competition could work effectively in the railway business." Haney's views on this point are already well known.[2] The development of the theory, however, especially in the present volume, seems a little labored; and, after all is said and done, appears affirmatory of the judgment passed upon it by the late Sir William Acworth. That is to say, the matter simmers down after all to the fact that in practice rates "find their equilibrium at about what the traffic will bear." Haney's technical mastery of railway practice finds expression in this volume in the detailed description of such subjects as export and import rates, the evolution of the new "dry land" rate schedules in southern territory, and in the outline of terminal problems. Evidently impressed with the significance of railway geography, he devotes undue space, perhaps, in one place to mere lineal lay-out, and in another to a catalogue of the various territorial rate divisions. This encyclopaedic treatment, altogether indigestible to the average student or the general reader, is somewhat alleviated by maps. And yet it must be asked whether such geographical gazetteering is worth while. One may also venture a protest against the reproduction of extended statistical tables in volumes of this sort. And the criticism is applicable alike to many current books in other parts of the field of descriptive economics. It is as true of the inclusion of elaborate statistical tables regarding strikes, their causes, etc., in a volume on labor problems, as of the appearance of similar exhibits respecting the character of railway tonnage by territorial divisions. A very little of this sort of thing goes a long

2. "Joint Costs with Especial Regard to Railways," in this Journal, vol. xxx, 1916, pp. 233–255.

way. Such material occupies precious space, unless introduced, as sometimes happens, deliberately for purposes of padding. Tables of figures are inherently forbidding. They become almost immediately obsolete. They are meaningless without elaborate qualification in the text. The usual run of students ignores them by instinct. To administer the material sustenance, so to speak, imperceptibly through the body of the text is essential in the creation of treatises which shall be appealing and stimulating, either to the ordinary student or the general reader. These observations, suggested by the outward appearance of Haney's volume, are, as was just intimated, of wide application. They are directed no more at him than at the craft of economic writers as a whole.

Professor Miller's book is by far the least satisfactory of the four. There is evidence of painstaking compilation in spots, especially in the statement concerning transcontinental rates; but on the underlying principles there is little evidence of sustained analysis. Market competition, for example, fails to appear in the discussion of the theory of rate making. The whole treatment of rate-making theory, in fact, is confused. The item of joint cost does not appear in the index, the author even having the opinion that the "joint cost 'bogey' will be found to be largely a thing of straw" (p. 542). The author is evidently an adherent of the cost-of-service principle. The volume, moreover, is particularly defective as respects finance. Such topics as valuation, reorganization, no-par stock, construction finance, the provision of new capital, the actual experience in governmental regulation of the issue of securities, are most superficially considered. The style is never distinguished; and at times it is almost paltry, with "normalcy," "trek," "point with pride," and "odorous" — this last with

reference to the reputation of Jay Gould. But most objectionable of all are the several hundred among its thousand pages consisting of mere information, of the sort inculcated by correspondence courses or in evening schools, like the well-known money-making "institutes" which cater necessarily to an undiscriminating clientele. Why devote page after page to the powers of administrative officers, elaborate description of the different services — freight, passenger, mail, or express? Why elaborately classify accounts, item by item, when "maintenance" and "surplus" are not even to be found in the index — let alone any adequate discussion in the text of the principles involved? The arrangement, too, is defective. Finance jostles labor problems. The injunction elbows receivership. There are all the earmarks of premature publication; there is no awaiting the experience and the poise which are attained only after real mastery of a field. Again, why bother, for instance, with elaborate statement of the powers of State or other commissions, when it is so well known that the real effectiveness of legislation, as true in the field of labor as of transportation, really depends upon the quality of the men behind the guns? All told, one must adjudge with regret that this largest and outwardly most imposing volume on our transportation bookshelf is in fact the thinnest and the poorest of the lot.

II

There are certain significant omissions in all of these volumes, especially in those which are intended for textbook use. One of these is the political aspect of governmental regulation, as it has developed in the United States since the 70's. The relationship between the common carriers and the State and Federal govern-

ment, by reason of the political activity of the railroads in the early days, cannot be ignored by any student of American affairs. From this point of view the study of railroad transportation becomes in effect one in American government. To trace the early supremacy of the railroad "machine," both in the fields of state and national politics, is essential to any proper understanding of much that has happened since. Nor can any student of government deny that the practical withdrawal of the railroads from political activity since the World War, yielding place to administrative control by the Federal government, has been one of the most wholesome developments of the last generation. Critics of these volumes, particularly of Jones, may be disposed to deplore the treatment of the pass evil, personal discrimination, and the like, as topics no longer of importance. But the fact is that these were the means by which in the early days a political situation was created which could be cured in only one way, namely, by the utter submission of the carriers to rigid administrative control. Without such control there could be no political freedom in most of the separate commonwealths. And yet, while treating of some of these matters technically, neither Jones nor the others seem to grasp the relationship in its broadest aspects. Is it indeed correct, with Miller, to characterize the legislation up to 1920, as "restrictive and punitive"? It was not constructive, to be sure! But was there not a political deadlock which had to be broken before anything constructive could ensue? Nor, on the other hand, do these authors wholly do justice to the railroad point of view. Too much emphasis is laid by all upon the mere provisions of statutes, to the neglect of the manner in which they were applied. Nowhere does one find the personal equation properly evaluated, as it manifested itself in the deplorable unfitness of so

many of the governmental agents entrusted with the enforcement of the laws. An adequate historical account, on the one hand of the ramifications of railroad influence in politics and, on the other hand, of the dishonesty and inefficiency of state agencies, remains yet to be written. There is abundance of material which has not yet found its way into print. None of these authors has added anything to our knowledge of the subject.

Another topic of first-class importance which is not yet understood, nor as yet adequately treated in any existing volume, is that of the division of through rates as between a number of connecting carriers. The entire discussion of rates, whether in theory or on the practical side, has to do with the single and undivided total. But on the ins and outs arising from the division of this total among numbers of connecting carriers, there is absolutely nothing. The consolidation proceedings since 1920 have for the first time placed in the record an abundance of data. Take as an illustration the New England carriers. Many persons fail to understand how a number of railroads, each in and of itself weak financially, may become strong through consolidation into a single group. The answer is that if, by reason of consolidation, they are able to extort a larger and perhaps more equitable division of the through rates into and out of their territory, they may thereby entirely transform their status. It is all at bottom a question of bargaining power. Or, if you please, take the group of carriers now contending among themselves with reference to the division of transcontinental rates at the Missouri River gateways. The carriers east of Omaha, to be specific, being many and necessitous for business, are confronted at the river with but a single carrier from the west, the Union Pacific. Both the mathematics and the economics of the situation, whereunder the through

transcontinental rates are divided east and west of this nodal point, are interesting and theoretically important. They may affect profoundly the financial standing of all of the carriers concerned. Yet the textbooks devote all of their attention to the total through rates, entirely forgetting that it is in fact the portion of this through rate falling to each and every one of the single companies which determines whether it shall be self-supporting or not. In other words, the distinction is at once raised between rate reasonableness, *as a whole*, and rate reasonableness to each and every one of the roads between which the total has to be apportioned. Their status, in fact, under the reasonableness clause of the Act of 1920 rests just as much upon the principles underlying the division of rates as upon the factors which determine the total through rate. Yet of this other half of the subject there is almost no hint in any of the treatises here under consideration. Nor do any of the authors apparently even suspect the interrelation between routing and rate division. Until the intricacies of railroad diplomacy in the field of rate division are placed upon record, this is perhaps inevitable; but a most significant gap in our knowledge and treatment of the subject surely exists.

Another significant hiatus in all of these treatises is the inadequate appreciation of the importance of terminal problems. Everybody busies himself with description and analysis of rates as if they were all "out on the line." These writers all ignore the wastes and inefficiencies which have to do with the assembly and the final delivery of goods to the consignee under a competitive régime. The truth about the matter was well expressed by Professor Daniels in his recent Harvard lectures, presumably inspired by a long experience on the Interstate Commerce Commission, that "the heart of

the railway question is found in the terminal situation."[3] Such also was the conclusion reached by the late Director General of the Federal Railway Administration in his analysis of existing conditions. Mr. Hines was most emphatic, in his Harvard lectures, that the most fruitful field for analysis as well as for operating economies in future would have to do with terminal developments. Yet only one of these four volumes does so much as to brush the topic. Haney makes a rather ineffective stab at it. Nowhere may one find any discussion at all of such topics as reciprocal switching, closed and open terminals, interchange operation, and especially unification of terminals. One of the great achievements of the war period was, to quote Professor Daniels once more, "the transformation of separate and closed terminals into open terminals under unitary operation." What is Chicago striving to bring about, already so successfully achieved at St. Louis? What is the Port Authority of New York seeking to attain? What was the significance of the Chicago Junction Railway decisions, both of the Interstate Commerce Commission and of the Supreme Court of the United States? Surely it is a serious matter that none of these authors pays any considerable attention to a matter of such immediate consequence.

Also, it is regrettable that there is not in some of these volumes, at least, more of a certain sort of geography. Not geography of rate territories as set forth by Haney, nor a meaningless catalogue of individual railroads, section by section, throughout the country, as in Miller; but rather of the underlying physical geography of the United States which has created the great trade routes by rail. The final map in my report on Consolidation of Railroads might readily enough be made significant to

3. Professor Daniels's paper in this Journal, vol. xxxviii, p. 361 (May, 1924).

economic students. Everybody knows, of course, the prime reasons for the location of New Orleans, New York, and San Francisco. But when it comes to Atlanta, Indianapolis, or Denver, especially in their relation to the common carriers of which they are a focus, the economic causes of their prominence are less immediately patent, yet not less foreordained by nature. Or again, still speaking of geography, the relation between the physical layout of individual railway systems and their efficiency and profitableness of operation, as I sought to describe it at the recent Washington session of the American Economic Association, seems not without significance. Experience over a fairly broad range of social and economic phenomena brings me back continually to the importance of physical environment as a factor in human affairs. It may perhaps be objected that such matters pertain rather to commercial geography than to transportation. But I am more and more inclined to dovetail the two topics into one another all along the line.

And finally, a general query presents itself. How far should the ideal textbook or treatise in transportation confine itself to the narrow field of steam railroading? The present situation is that railroads and transportation, in academic nomenclature, are treated as practically synonymous. And yet outside the field of the steam common-carrier on land, there lies the great domain of carriage by water, and of course, on the open road, by the trolley lines and latterly by motor bus and truck; and who shall dare to deny, in due season, even by the aerial routes. In and through all of these differing forms of carriage of persons and of goods, there runs the common element of distance as a factor in production. The relation, in other words, of cost of carriage to that of production on the spot is the keynote of the

whole business. From that there springs the whole matter of the geographical delimitation of markets. No better concrete illustration, perhaps, of the involvement of carriage cost and production cost could be cited, recently, than that of the "Pittsburgh plus" price policy of the United States Steel Corporation. Professor Fetter has latterly initiated a discussion of this in its relation to economic theory. Nor is the matter one confined within the domain of domestic trade. The phenomenon of dumping is just as much an element in the competition of the "neighborhood" tradesman threatened by the competition of the great merchandising combination, as it enters into the international competition of Germany with the United States or Great Britain. It may well be left to the imagination how much more illuminating and intellectually stimulating such broad issues as these may be, objectively speaking, than mere formal classification of the various artificial rate structure areas in the United States, as set forth in so many of these volumes under review. Possibly, in fine, some economic writer may in due season set himself the worthwhile task of revamping the entire presentation of the economics of transportation, to the end that it may rise above the present plane of treatment into the more subtle, refined, and general one of sheer economic ratiocination.

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REVIEW

EDGEWORTH'S PAPERS RELATING TO POLITICAL ECONOMY[1]

THE many friends and admirers of Professor Edgeworth will be pleased to find his numerous and brilliant papers on Economics assembled in book form, after having already seen them, from time to time, in the Journal of the Royal Economic Society, of which he has been the distinguished editor from the beginning, in 1891.

The first of the three volumes covers the subjects of (1) Value and Distribution, (2) Monopoly, and (3) Money; the second is devoted to (1) International Trade, (2) Taxation, and (3) Mathematical Economics; while the third volume consists simply of Edgeworth's Reviews of other people's works. There is confessedly little unity in the collection, as the author's writings have had so wide a range. Even as it stands, it does not include his chief statistical contributions, altho it includes a few papers distinctively on Economics from the organs of other learned societies. On the other hand, there are omissions of some papers which appeared in the Journal of the Royal Economic Society, because (in a few instances) the author has since discovered errors in his reasoning, or because the papers are "too intricate," or because they were merely short book notices.

Volume I opens with the author's inaugural lecture delivered in 1891 on the occasion of assuming the Professorship of Political Economy at Oxford. Entitled "The Objects and Methods of Political Economy," it reflects the author's interest in mathematical method and his catholic academic attitude — that of a teacher rather than a preacher — as well

1. Papers Relating to Political Economy. By F. Y. Edgeworth, Emeritus Professor of Political Economy at the University of Oxford. Published on behalf of the Royal Economic Society by Macmillan and Company, London, 1925. Three volumes.

as his notable open-mindedness, which indeed sometimes goes to the verge of skepticism and indecision. The second paper, on Distribution, consists of the lectures delivered at Harvard University in 1902, and published in the Quarterly Journal of Economics in 1904. This learned dissertation makes copious references to Marshall, Taussig, Mangoldt, Clark, Cairnes, Pareto, Walras, Barone, etc. The author maintains that the principle of marginal productivity is inadequate, and even goes so far as virtually to ridicule Wicksteed's efforts to coördinate all distribution on this principle. These efforts seem to him to run the principle into the ground by requiring conditions impossible of attainment. Edgeworth's theory gives more express recognition to the risk element than is common in writings on Distribution, thus pointing the direction, the reviewer believes, toward the next great step in the discussion of Distribution problems. The third essay is on the Laws of Increasing and Diminishing Returns; the fourth, on the Use of Differential Prices in a Régime of Competition. In the last named, an argument is put forward to show that discrimination between customers is, in general in a régime of Monopoly, advantageous to both buyer and seller and may be so even under competition. The last-named possibility is evidently intended as one of those curiosities which Professor Edgeworth delights to discover. Professor Edgeworth has always seemed too modest in refraining from any attempt to re-lay the foundations of Economic Science, such as has been undertaken by so many writers of much lesser caliber. He wishes to add to structures already formed. In consequence he has devoted a large share of his attention to what is relatively unimportant and unlikely to have practical application.

The next essay, on the Theory of Monopoly, is a translation from his article in Giornale degli Economisti, 1897, which itself was translated from an original English copy now lost. The central idea of this essay is to show that, under certain circumstances, the problem of monopoly is indeterminate. On this question he criticizes Cournot, in spite of his admiration of Cournot's mathematics in general. In the article on Railway Rates, Edgeworth's theories of Monopoly again

have important applications. He is particularly interested in the problem of competitive rates on through traffic when there are monopoly rates for intermediate traffic. He tells us he would have returned to this subject but for the War.

The last section of the first volume, devoted to Money, occupies half of the entire volume. It begins with a long article on Measurement of Change in Value of Money, which consists of the first and third of the three famous memoranda on this subject presented in 1887, 1888, and 1889 to the British Association for the Advancement of Science. Here is one of Professor Edgeworth's favorite subjects, and here he does very distinctly lay foundation stones, rather than merely study curiosities of thought. Nevertheless, even in this important and semi-practical realm, there is still evident his strong tendency to consider academic possibilities, side by side with his desire to cut Gordian knots for practical purposes. Much attention is given to the apparent conflict between the Commodity Standard and the Labor Standard, and on page 207 is a schedule indicating, under fourteen subdivisions, the various possible standards. More, perhaps, than any other writer, Professor Edgeworth brings into the discussion of Index Numbers the motif of Probability, one of the many subjects of which he is master. In his Tests of Accurate Measurement will be found his well-known advocacy of the Median. Under Variorum Notes on Index Numbers he expresses the hope that the Labor Standard and Commodity Standard may, after all, not be so far different as to give concern to those who, like the reviewer, advocate Monetary Stabilization. In his Evaluation of the Metallic Currency, Professor Edgeworth discusses the various methods — those of Newmarch, De Foville, F. C. Harrison, Jevons, Shirras, and Palgrave — for estimating metallic circulation. From the closeness of the results of various calculations he believes that it is often possible to make these calculations with "quite the rigour of Physical Science." The volume closes with a discussion of bimetallism, including Marshall's symmetallism, which the author illustrates by a mechanical representation borrowed (with most courteous acknowledgment) from the present reviewer's Mechanics of Bimetallism.

Volume II begins with The Pure Theory of International Values, originally published in 1894, in which the author criticizes Mill, Cairnes, and Sidgwick. His original criticism of Bastable is withdrawn because of the conviction, after Bastable's reply, that the author was in error. Next come papers on Taxation. One of Professor Edgeworth's favorite fields in his search for economic curiosities is that of Taxation. He shows that, even in a régime of competition, sometimes a tax on one of two related articles may cause the price of both articles to fall! Another paradox is that a tax on both of two commodities (which are partial substitutes for each other) may benefit the producer of one of them! But the discussion of taxation is not confined to paradoxes. There is included a discussion of the fundamental principle of good taxation, and especially of the distinction between "minimum aggregate sacrifice" and "equal sacrifice" as well as "proportional sacrifice"; altho here, as in so many cases, the outcome is inconclusive. A paper on Urban Rates answers a questionnaire of the Royal Commission on Local Taxation at the end of the last century. It displays the evident struggle between the two Edgeworths, the academic theorist and the striver for practical progress. Graduation of Taxes and Formulae for Graduating Taxation study the various empirical formulae for a progressive Income Tax.

The section on Mathematical Economics, which closes the second volume and occupies over a third of it, begins with the Presidential Address before Section F of the British Association in 1889, in which he defended Mathematical Economics, in those days a curiosity. It was in that same year that the reviewer first became interested in the subject, and only a short time afterwards that he made the acquaintance of Professor Edgeworth, and with him fought the common cause of Mathematical Economics. To-day, thanks largely to Professor Edgeworth, the battle seems to have been won. At any rate few, if any, would venture now to challenge the usefulness of mathematics in Economics and Statistics and propose a return to the old literary forms. But in those days, even diagrams were regarded with suspicion and as useless pedantic paraphernalia.

Perhaps Edgeworth's most characteristic contribution in the field of Mathematical Economics is his Application of Probability to Economics. This not only is the title of one of his essays, but represents much of the subject matter of others. In fact, the three subjects in which Professor Edgeworth has most discussed fundamentals rather than curiosities are Mathematical Method, Probability Theory, and Index Numbers.

The third volume contains 75 Reviews. They begin with one on the Scope and Method of Political Economy of John Neville Keynes (father of J. Maynard Keynes), and include reviews of Marshall's Principles of Economics, Böhm-Bawerk's Positive Theory of Capital, Bastable's Public Finance, Clark's Distribution of Wealth, Leonard Darwin's Bimetallism, H. G. Wells's Anticipation, Sir Horace Plunkett's Ireland in the New Century, Carver's Theory of Distribution, Taussig's Present Position of the Doctrine of Free Trade, Mitchell's Prices and Wages under the Greenback Standard, Withers's The Meaning of Money, and various other writings by Sidgwick, William Smart, Bortkiewicz, Pareto, Sidney and Beatrice Webb, L. L. Price, J. S. Nicholson, N. G. Pierson, Grasiani, Bonar, Hollander, Gide, Cannan, Pigou, Bowley, Dieztel, Cuninghame, De Foville, Andreades, Colson, Ashley, Hammond, Sombart, Stamp, Lehfeldt, Mrs. Faucett, Moulton, Phillips, Loria, Cassel, the present reviewer, and others. The array is imposing.

No reader or consulter of these volumes can fail to see how able a writer and thinker is the author, to say nothing of his erudition. Few writers have so consistent a record for breaking new ground themselves, and for generously recognizing the work of others. The three volumes will doubtless constitute the important monuments of Edgeworth's life, along with his masterly editorship of the Journal of the Royal Economic Society from which, for the most part, the volumes are constituted.

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NOTE

"SUPEREST AGER"

In a note, "Superest Ager," in this Journal for May, 1925, Mr. W. C. MacLeod attempts, by an *a priori* application of Malthusian doctrine, to disprove the probability of the existence of free land in the early stages of social development.

The point at issue is academic, recalling the famous historical controversy which raged in the 1880's and 1890's around the conflicting views of Kemble and von Maurer versus Seebohm and Fustel de Coulanges, concerning the historical reality of the early German communal mark. The question has not always been entirely academic, however, for there have been socialists who imagined that proof of the early existence of free land, or of communal land holding, would be argument for the nationalization of the land to-day; indeed the position of the extreme single taxers implies the assumption of an early period when all land was free. It was naïvely assumed that because land was formerly not privately owned it should not be to-day. Mr. MacLeod takes the other extreme — the view that since free land is virtually impossible to-day it has always been so, by reason of population pressure. Both views indicate some deficiency in historical perspective and in understanding of the principle of economic relativity.

Mr. MacLeod specifically denies the validity of the reasoning of Malinowski, Hobhouse,[1] and Oppenheimer as to the relation between land appropriation and the development of slavery and class systems. It is of the "nature" of population [he says] to increase beyond the capacity of the people, in a given state of the arts, to obtain food. "There is [further-

1. Mr. MacLeod's reference is to L. T. Hobson — an obvious misprint for L. T. Hobhouse.

more] nothing in the facts of primitive life which would indicate that any tendency or situation other than this has normally obtained in the early stages of human development. . . . There is no reason to believe that among primitive groups war, voluntary abortion and infanticide, and the like, normally kept population below the point where the Malthusian checks were socially indispensable, or where all land — the existing state of the arts considered — was not exhaustively utilized."

Several comments suggest themselves concerning statements of this kind. In the present state of anthropological knowledge it is rather daring to indulge in such sweeping generalizations. Just how are we to know that infanticide was "universal," how prevalent it was, or that it was "economically motivated"? How does Mr. MacLeod know that "all land was exhaustively utilized"? He adduces no evidence save his reference to the "nature" of population growth.

Here, surely, is a naïve application of eighteenth-century metaphysics. It is curious to see a careful student of social evolution, like Hobhouse, taken to task and accused of fallacious assumptions on such ground. Malthus himself would have been slow to countenance any such crass use of his "principle." It is true that Malthus, in the second edition of the Essay, attempted to show that his positive checks were operative in all stages of culture upon which he could obtain information; but reliable data on primitive society were largely lacking in 1803. Certainly he sought concrete evidence, finding the *a priori* argument from "nature" or "tendency" unconvincing to skeptical critics. Surely, economic history to-day will not gain in objectivity if we are to admit to its methods of research metaphysical and dogmatic inferences from "nature." To argue that an early redundancy of land was impossible because it is the "nature" of population to increase in geometrical ratio is on a par with saying that a vacuum is impossible because "nature" abhors it.

It is worthy of note that Carr-Saunders in his recent book [2] fills several hundred pages with data from which he endeavors,

2. The Population Problem, A Study in Human Evolution, 1922.

unsuccessfully, I think, to substantiate the exact opposite of the conclusions reached by Malthus and applied without question by Mr. MacLeod. Carr-Saunders believes that throughout history and pre-history man has aimed to maintain the *optimum* relation between population and resources and has in the main succeeded. Infanticide, lack of care of children, pre-pubertal intercourse, here and there contraception, as well as war, famine, and disease, have coöperated to keep the population not at, but below, the limits of subsistence. As I have elsewhere suggested,[3] Carr-Saunders's "optimum" looks, on critical examination, suspiciously like a subsistence limit; but his conclusions and the data on which they are based should at least have fair consideration before we conclude that the "nature" of population has precluded, from the first, any redundancy of land.

Even a cursory dip into the concrete data of culture history should suffice to convince one that land was not always fully appropriated and utilized, and that factors other than limitation of subsistence kept the population, at times and among some peoples at least, below the numbers the available resources and the prevailing state of the arts could have supported. The vagaries of primitive logic and tradition found reasons other than limited food supply for infanticide and for taboos and regulations with regard to marriage and procreation.[4]

Mr. MacLeod affirms that modern writers fail "to take into account the fact that, so far as population and the arts go, a region may present aboriginal conditions and yet, by reason of the introduction of new diseases and new vices, represent other than normal aboriginal relation between

3. American Economic Review, March, 1924, pp. 142, 143.

4. Professor A. L. Kroeber's monumental Handbook of the Indians of California, just published (Washington, Bureau of Ethnology Bulletin 78, 1925), contains much of interest in this connection. See especially his exhaustive study of the culture of the northern California tribes — the Yurok, Karok, Wiyot, Maidu, etc. The California data indicate that incidental slavery and some approach to class differentiation may exist, among primitive peoples, even where land is not all privately possessed. On the other hand they give little support to the view that "savage" tribes are always on the verge of starvation.

resources and population," and hence that whites coming into contact with the aborigines through advancing settlement, may find a population below the normal numbers, and the land supply consequently redundant to the subsistence needs of the natives. But is there anything in the early accounts of the South Sea Islands, for instance, to indicate that their population was at the subsistence limit? [5] Going further back, what are we to say of the population-land relation during those several thousand years it probably took the ancestors of the American Indians to spread from Behring Strait to Cape Cod and Patagonia? Was there no free land then? And were slavery and sharply defined classes common? [6]

Finally, let us ask if there is not some evidence as to the general incompatibility between free land and the existence of classes in the social history of the American population during most of the period of westward expansion. It has long been the belief of historians and sociologists that our "limitless" public domain, a slice of which any man with initiative could have for the asking, was until about 1890 one of the main causes of the comparative absence of a class system in this country.[7] Perhaps this belief must be given up, but if so, it would seem that we should have a better reason than an imputed metaphysical "nature" of population.

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5. Readers of Herman Melville's Typee, for instance,—an entertaining account of his sojourn among the cannibal natives of the Marquesas in 1842, — will not gain the impression that much of the land was really occupied or utilized, or that these people had to worry about subsistence. And at this early date the Marquesans had not had enough contact with whites materially to reduce their numbers.

6. Bearing on this general subject is Mr. MacLeod's article, "Debtor and Chattel Slavery in Aboriginal North America," American Anthropologist, July, 1925, pp. 370–380.

7. Cf. F. M. Taylor, Principles of Economics, 1921, p. 366.

BOOKS RECEIVED

Ambedkar, B. R. The Evolution of Provincial Finance in British India. London: P. S. King & Son, Ltd. 1925. pp. 285. 15*s*. (Foreword by E. R. A. Seligman.)

Bellerby, J. R. Monetary Stability. London: Macmillan & Co., Ltd. 1925. pp. 174. 7/6.

Blum, Solomon. Labor Economics. New York: Henry Holt & Co. 1925. pp. 579. $3.00.

Boyle, James E. Marketing of Agricultural Products. New York: McGraw-Hill Book Co., Inc. 1925. pp. 479.

Campbell, C. G. Common Wealth. A Study in Social Philosophy. New York: Century Co. 1925. pp. 472. $3.00.

Canina, Attilio Garino. La Finanza del Piemonte nella Seconda Metà del XVI Secolo. Torino: Collegio degli Artigianelli. 1924. pp. 142.

Chablani, H. L. Indian Currency and Exchange. New York: Oxford University Press. 1925. pp. 184. $2.50.

Chaddock, Robert Emmet. Principles and Methods of Statistics. Boston: Houghton Mifflin Co. 1925. pp. 471. $3.75.

Chase, Stuart. The Tragedy of Waste. New York: Macmillan Co. 1925. pp. 296. $2.50.

Crum, William Leonard, and Patton, Alson Currie. An Introduction to the Methods of Economic Statistics. Chicago: A. W. Shaw Co. 1925. pp. 486.

Darling, Malcolm L. The Punjab Peasant. New York: Oxford University Press. 1925. pp. 298. $4.50.

Das, Rajani Kanta. Production in India. Calcutta: K. Biswas. 1924. pp. 180.

Douglas, Dorothy Wolff. Guillaume De Greef: The Social Theory of an Early Syndicalist. New York: Longmans, Green & Co. 1925. pp. 391. (Columbia University Studies.)

Eaves, Lucile (Director and Editor). Aged Clients of Boston Social Agencies. Boston: Women's Educational and Industrial Union. 1925. pp. 152. $1.25.

Faust, Martin L. The Custody of State Funds. New York: National Institute of Public Administration. 1925. pp. 176. $2.00.

Fay, C. R. Coöperation at Home and Abroad. London: P. S. King & Son, Ltd. 1925. pp. 481. 15*s*. (Third edition.)

Fisher, Mrs. H. A. L. Then and Now. Economic Problems after the War a Hundred Years Ago. New York: Oxford University Press. 1925. pp. 117. $1.75.

Furniss, Edgar S., with the collaboration of Lawrence R. Guild. Labor Problems. A Book of Materials for their Study. Boston: Houghton Mifflin Co. 1925. pp. 621. $2.50.

Gay, George I. Statistical Review of Relief Operations. Stanford, Calif.: Stanford University Press. 1925. pp. 439. (On the Commission for Relief in Belgium.)

Griziotti, Benvenuto. La Politica Finanziaria Italiana. Studi sui Problemi Monetari e Finansiari. Milano: Istituto Editoriale Scientifico. 1925. pp. 229. 30*l*.

Hamilton, Walton H. Current Economic Problems. Chicago: University of Chicago Press. 1925. pp. 960. $4.00. (Third edition.)

Halbwachs, Maurice. Les Cadres Sociaux de la Mémoire. Paris: Félix Alcan. 1925. pp. 401. 25*frs.*

Harding, W. P. G. The Formative Period of the Federal Reserve System. Boston: Houghton Mifflin Co. 1925. pp. 320. $4.50.

Heaton, H. Modern Economic History. With special reference to Australia. Adelaide: Workers' Educational Association of South Australia. 1925. pp. 351. 9*s.* (Revised edition. W. E. A. Series.)

Hewett, William Wallace. The Definition of Income and its Application in Federal Taxation. Philadelphia: Westbrook Pub. Co. 1925. pp. 91.

Hoopingarner, Dwight Lowell. Labor Relations in Industry. Chicago: A. W. Shaw Co. 1925. pp. 551. $6.00.

Huffcut, Ernest W. The Elements of Business Law. With illustrative examples and problems. Boston: Ginn & Co. 1925. pp. 359. $1.48. (Second edition, revised by G. G. Bogert.)

Institut International d'Agriculture. Annuaire International de Statistique Agricole, 1924–25. Rome: Institut International d'Agriculture. 1925. pp. 489. 35*frs.*

Institute for Government Research Service Monographs. The Children's Bureau. By James A. Tobey. Baltimore: Johns Hopkins Press. 1925. pp. 83. $1.00.

Jones, Eliot, and Vanderblue, Homer B. (Editors). Railroads Cases and Selections. New York: Macmillan Co. 1925. pp. 882.

Jordan, J. P., and Harris, Gould L. Cost Accounting Principles and Practice. New York: Ronald Press Co. 1925. pp. 562. $4.00. (Second edition, revised.)

Kautsky, Karl. The Economic Doctrines of Karl Marx. London: A. & C. Black, Ltd. 1925. pp. 248. (Translated by H. J. Stenning.)

Kester, Roy B. Accounting Theory and Practice. New York: Ronald Press Co. 1925. pp. 855. $4.50. Vol. II. (Second-year text.)

Liu, Shih Shun. Extraterritoriality: Its Rise and its Decline. New York: Longmans, Green & Co. 1925. pp. 235.

Maynard, Harold H., and Weidler, Walter C. An Introduction to Business. New York: Ronald Press Co. 1925. pp. 616. $4.00.

McConnell, Weston Joseph. Social Cleavages in Texas. A Study of the Proposed Division of the State. New York: Longmans, Green & Co. 1925. pp. 196. (Columbia University Studies.)

Merriam, Charles E. New Aspects of Politics. Chicago: University of Chicago Press. 1925. pp. 253. $2.50.

Mills, Frederick C., and Davenport, Donald H. A Manual of Problems and Tables in Statistics, with notes on Statistical Procedure. New York: Henry Holt & Co. 1925. pp. 203.

Moulton, Harold G. The Financial Organization of Society. Chicago: University of Chicago Press. 1925. pp. 780. $4.00. (Second edition, revised.)

Moulton, Harold G., and Lewis, Cleona. The French Debt Problem. New York: Macmillan Co. 1925. pp. 459. $2.00. (The Institute of Economics Series.)

Mukerjee, Radhakamal. Groundwork of Economics. New York: Longmans, Green & Co. 1925. pp. 217. $1.80.

National Industrial Conference Board. The Employment of Young Persons in the United States. New York: 1925. pp. 150. $1.50.

Pirou, Gaëtan. Les Doctrines Economiques en France depuis 1870. Paris: Armand Colin. 1925. pp. 200. 6*fr.*

Poffenberger, Albert J. Psychology in Advertising. Chicago: A. W. Shaw Co. 1925. pp. 632. $6.00.

Reed, Harold L. Principles of Corporation Finance. Boston: Houghton, Mifflin Co. 1925. pp. 412. (Under the editorship of Allyn A. Young.)

Reeves, William Pember. State Experiments in Australia and New Zealand. Vols. I and II.) New York: E. P. Dutton & Co. 1925. Vol. I, p. 391; Vol. II, p. 367. $8.00 per set. (For some time out of print, now reprinted.)

Requa, Mark L. The Relation of Government to Industry. New York: Macmillan Co. 1925. pp. 241. $2.00.

Sack, A. N. Fixing the Value of Money. Riga: "The Latvian Economist." 1925. pp. 50.

Scott, Dr. Theory of Accounts. Vol. I. New York: Henry Holt & Co. 1925. pp. 284. $2.50. (American Business Series. Roswell C. McCrea, General editor.)

Secrist, Horace. An Introduction to Statistical Method. A textbook for college students, a manual for statisticians and business executives. New York: Macmillan Co. 1925. pp. 584. (Revised edition entirely rewritten and enlarged.)

Sée, Henri. La France économique et sociale au XVIII siècle. Paris: Armand Colin. 1925. pp. 193. 7 *frs.*

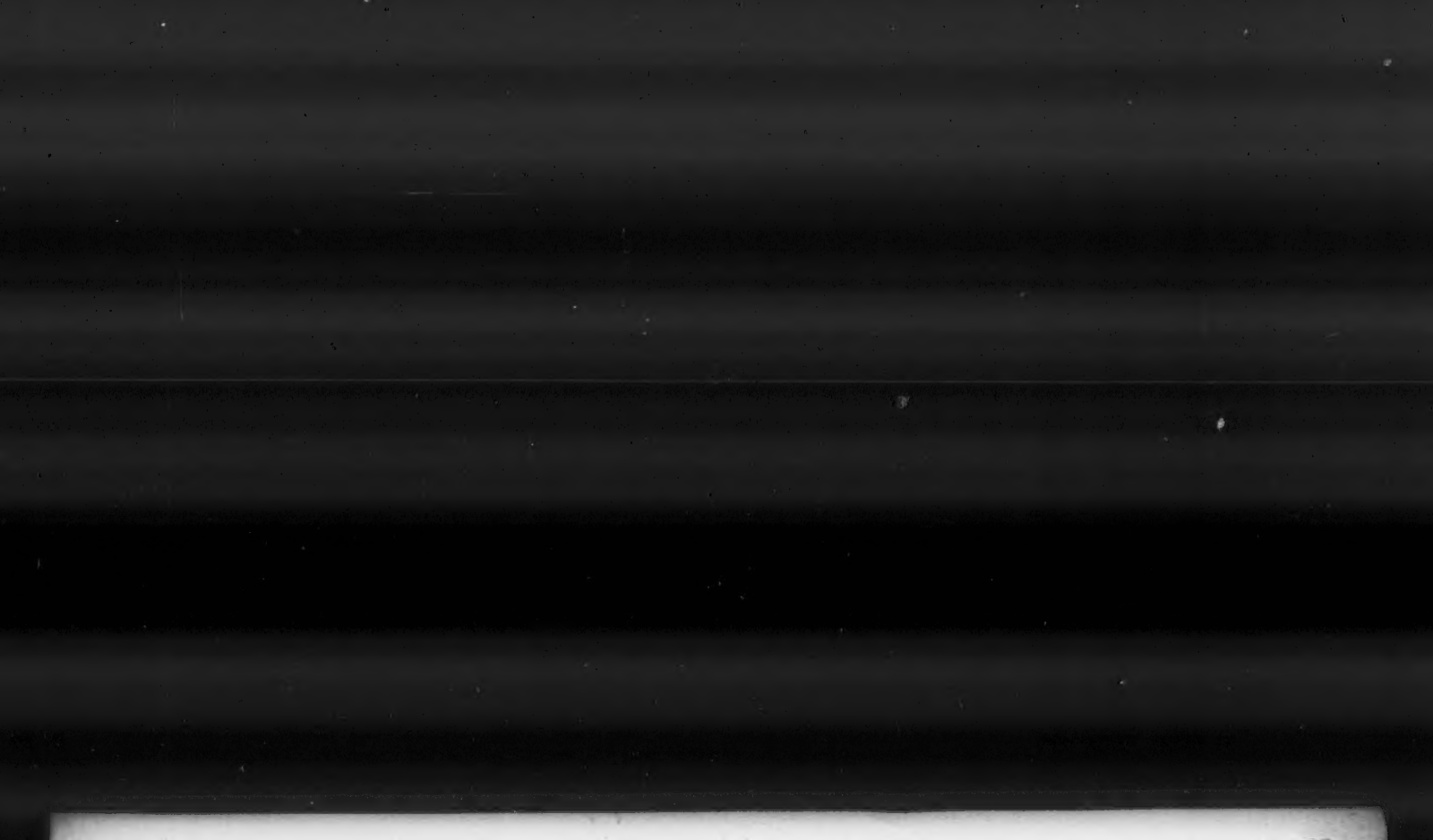
Smith, D. H. An Economic Geography of Europe. New York: Longmans, Green & Co. 1925. pp. 247. $1.50.

Tipper, Harry, and others. Principles of Advertising. New York: Ronald Press Co. 1925. pp. 473. $4.50. (Revised and enlarged edition.)

Todd, John A. The Science of Prices. A handbook of economics. (Production, consumption, and value.) New York: Oxford University Press. 1925. pp. 264. $2.00.

Turgeon, Charles. Étude de la Valeur. Rennes, France: Plihou et Hommay. 1925. pp. 466. (Travaux juridiques et économiques de l'université de Rennes, Tome IX. In seven parts, on demand and supply, value in use and value in exchange, scarcity and the mathematical school, marginal utility.)

Willis, H. Parker, and Edwards, George W. Banking and Business. New York: Harper & Bros. 1925. pp. 565. $3.50. (Revised and enlarged edition.)

Woodbridge, Frederick W. Elements of Accounting. New York: Ronald Press Co. 1925. pp. 700. $4.00.

Zimmerman, James Fulton. Impressment of American Seamen. New York: Longmans, Green & Co. 1925. pp. 279. (Columbia University Studies.)